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Service Manual

ORDER NO.
ARP3424

PLASMA TELEVISION

PDP-427XG
PDP-427XDA

THIS MANUAL IS APPLICABLE TO THE FOLLOWING MODEL(S) AND TYPE(S).

Model	Type	Power Requirement	Remarks
PDP-427XG	DLFR	AC 110 V to 240 V	
PDP-427XDA	YP	AC 240 V	

- **For SPECIFICATIONS and PANEL FACILITIES, refer to the operating instructions.**

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1. QUICK REFERENCE UPON SERVICE VISIT

PDP-427XDA, XG Quick Reference upon Service Visit ①
Notes, PD/SD diagnosis, and methods for various settings

Notes when visiting for service

1. Notes when disassembling/reassembling

① **Rear case**
When reassembling the rear case, the screws must be tightened in a specific order. Be careful not to tighten them in the wrong order forcibly. For details, see "Rear Case" in "6. DISASSEMBLY" on ARP3391.

② **Attaching screws for the HDMI connector**
When attaching the HDMI connector after replacing the Main Assy, secure the HDMI connector manually with a screwdriver, but not with an electric screwdriver. If you tighten the screws too tightly with an electric screwdriver, the screw heads may be damaged, in which case the screws cannot be untightened/tightened any more.

2. On parts replacement

① **How to discharge before replacing the Assys**
A charge of significant voltage remains in the Plasma Panel even after the power is turned off. Safely discharge the panel before replacement of parts, in either manner indicated below:
A: Let the panel sit at least for 3 minutes after the power is turned off.
B: Turn the Large Signal System off before the power is turned off then, after 1 minute, turn the power off.
For details, see "10.3 Power ON/OFF Function for the Large-Signal System" on ARP3391.

② **On the settings after replacement of the Assys**
Some boards need settings made after replacement of the Assys. For details, see "7. ADJUSTMENT" on ARP3391.

3. On various settings

① **SR+**
After a repair using a PC, be sure to restore the setting for the RS-232C connector to SR+.

② **Setting in Factory mode**
After a Mask indication into the panel is performed, be sure to set the Mask setting to "OFF" then exit Factory mode.

PD/SD

Item		No. of LEDs flashing	
		Red	Blue
Panel section	Communication with the panel drive IC		Blue 1
	Communication with the module IIC		Blue 2
	DIGTAL-RST2		Blue 3
	Panel high temperature		Blue 4
Main section	Audio		Blue 5
	Communication with the Module microcomputer		Blue 6
	Main 3-wire serial communication		Blue 7
	Main IIC communication		Blue 8
	Communication with the Main microcomputer		Blue 9
	FAN		Blue 10
	Unit high temperature		Blue 11
	No corresponding item		Blue 12
	MTB-RST2/RST4		Blue 13
POWER		Red 2	
SCAN		Red 3	
SCN-5V		Red 4	
Y-DRIVE		Red 5	
Y-DCDC		Red 6	
Y-SUS		Red 7	
ADRS		Red 8	
X-DRIVE		Red 9	
X-DCDC		Red 10	
X-SUS		Red 11	
UNKNOWN		Red 15	

Change of settings

How to enter Factory mode using the supplied remote control unit

In the same way as with the remote control unit supplied with the 6th-generation model

How to enter Integrator mode using the supplied remote control unit

① Enter the Standby mode.
② Press [MENU].
③ Press [TV ⏻].

How to switch UART ① (Integrator)

① Enter the Integrator mode.
② Display "OFF" using [➡].
③ Change the communication speed using [⬇], then [➡].

How to switch UART ② (During Standby)

① Enter the Standby mode.
② Hold [VOL +] or [VOL -] pressed for 3 seconds.
③ Hold [SPLIT] pressed for 3 seconds.
④-1 To set to 232C, press [ENTER].
⑤-2 To set to SR+, press [HOME MENU].

Note: If switching is completed successfully, the red LED will flash twice.
Note 1: Use a remote control unit supplied with the 6th-generation models or later.
Note 2: Do not hold a key pressed for more than 5 seconds.

How to locate several items on the Factory menu

{ } : Item on the Factory menu
[ ] : Key on the remote control unit
" " : Screen indication

1. Confirmation of accumulated power-on time and power-on count
Select {INFORMATION} then {HOUR METER}.
(After entering Factory mode, press [⬇] four times.)

2. Confirmation of the Power-down and Shutdown histories

① **Panel system**
PD: Select {PANEL FACTORY} then {POWER DOWN}.
(After entering Factory mode, press [MUTING] once, press [ENTER], then press [⬇] three times.)
SD: Select {PANEL FACTORY} then {SHUT DOWN}.
(After entering Factory mode, press [MUTING] once, press [ENTER], then press [⬇] four times.)

② **Main Assy**
Select {INFORMATION} then {MAIN NG}.
(After entering Factory mode, press [⬇] once.)

3. How to display the Mask indication

① **Mask indication in the panel side**
1. Select {PANEL FACTORY} then {RASTER MASK SETUP}.
(After entering Factory mode, press [MUTING] once, press [ENTER], then press [⬇] 8 times.)
2. Press [ENTER], then select a Mask indication, using [⬆] or [⬇].

② **Mask (SG screen) indication in the Main Assy (MAIN VDEC)**
1. Select either Input 1, 2 or 4, to which no signal is input (black screen).
2. Select {INITIALIZE} then {SG MODE}. Press [⬅]. (After entering Factory mode, press [MUTING] three, then press [⬇] once.)
Then, the indication at the lower right of the screen changes from "OFF" to "ANA AD YCBCR".
3. You can change Mask patterns by pressing [⬇] to select {SG PATTERN} then using [⬅] or [➡].
Note: When you switch "SG MODE" routes, some displays become monochrome, as they are in Y-signal only mode.

Adjustments and Settings after replacement of the Assys (Procedures in Factory mode)

1. Digital Video Assy: Transfer of backup data
① Select {PANEL FACTORY}, {ETC}, then {BACKUP DATA}. (After entering Factory mode, press [MUTING] once, press [ENTER], press [⬇] seven times, then press [ENTER].)
② Select {TRANSFER}, using [➡], then hold [ENTER] pressed for at least 5 seconds.
③ After transfer of backup data is completed, {ETC} is automatically selected, and the LED on the front panel returns to normal lighting.

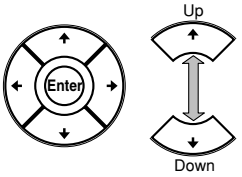
2. MAIN Assy : Switching to SR+ from RS-232C
① Enter the Integrator mode. (The way is described above.)
② As SR+ <=> is [OFF] state, switch to [ON] state by using [➡].
③ Turn the POWER switch of the main unit off by the remote control.

3. POWER SUPPLY Unit: Clearance of the accumulated power-on count and maximum temperature value
① Select {PANEL FACTORY}, {ETC}, then {P COUNT INFO}. (After entering Factory mode, press [MUTING] once, press [ENTER], press [⬇] seven times, press [ENTER], then press [⬇] six times.)
② Press [➡] to select "CLEAR". Hold [ENTER] pressed for at least 5 seconds.
After clearance is completed, "ETC" is automatically selected. Clear the maximum temperature value (MAX TEMP) in the same manner.

4. Other Assys: Clearance of the maximum temperature value
① Select {PANEL FACTORY}, {ETC}, then {MAX TEMP}. (After entering Factory mode, press [MUTING] once, press [ENTER], press [⬇] seven times, press [ENTER], then press [⬇] seven times.)
② Press [➡] to select "CLEAR". Hold [ENTER] pressed for at least 5 seconds.
After clearance is completed, "ETC" is automatically selected.

PDP-427XDA, XG Quick Reference upon Service Visit ②
Mode transition and structure of layers in Service Factory mode

Mode transition in Service Factory mode



- To shift to another mode, press [MUTING].
- To shift to another item in a specific mode, press [⬆] or [⬇].
- To shift to the next nested layer below for an item with a "(+)" indication, press [ENTER]. To return to the next nested layer above, also press [ENTER].

INFORMATION mode
1. VERSION (1)
2. VERSION (2)
3. MAIN NG
4. TEMPERATURE
5. HOUR METER
6. HDMI SIGNAL INFO1
7. HDMI SIGNAL INFO2
8. VDEC SIGNAL INFO

MUTING

INITIALIZE mode
1. SYNC DET
2. SG MODE
3. SG PATTERN
4. SIDE MASK LEVEL
5. FINAL SETUP
6. CVT AUTO
7. HDMI INTR POSITION

MUTING

PANEL FACTORY mode
1. PANEL INFORMATION
2. PANEL WORKS
3. POWER DOWN
4. SHUT DOWN
5. PANEL-1 ADJ
6. PANEL-2 ADJ
7. PANEL REVICE
8. ETC.
9. RASTER MASK SETUP
10. PATTEN MASK SETUP
11. COMBI MASK SETUP

MUTING

OPTION mode
1. EDID WRITE MODE
2. CH PRESET
3. AFT

MUTING

Structure of Layers in Service Factory Mode

INFORMATION mode	
├ 1. VERSION (1)	Flash Versions for PANEL system and MAIN system
├ 2. VERSION (2)	Flash Versions for DTV system
├ 3. MAIN NG	SD histories for MAIN (Going Clear model by SET key)
│ └ 3-1. CLEAR	Select Yes by [➡] key ➡ pushing and hold [SET] key
├ 4. TEMPERATURE	TEMP 1, TEMP2 and FAN mode are displayed
├ 5. HOUR METER	Hour meter and number of Power ON are displayed
│ └ 5-1. CLEAR	Select Yes by [➡] key ➡ pushing and hold [SET] key
├ 6. HDMI SIGNAL INFO 1	For factory use
├ 7. HDMI SIGNAL INFO 2	Signal info of HDMI are displayed (Detail are on SM)
├ 8. VDEC SIGNAL INFO	For factory use
PANEL FACTORY mode	Refer to [PANEL FACTORY MODE]
OPTION	
├ 1. EDID WRITE MODE	For factory use
├ 2. CH PRESET	For production line use
└ 3. AFT	For production line use
INITIALIZE	
├ 1. SYNC DET (+)	For factory use
2. SG MODE	SG signal from MAIN VDEC (Composite signal is required)
3. SG PATTERN	For factory use
├ 4. SIDE MASK LEVEL(+)	For factory use
├ ├ 4-1. R MASK LEVEL	
├ ├ 4-2. G MASK LEVEL	
├ └ 4-3. B MASK LEVEL	
├ 5. FINAL SETUP	Set to Factory default settings (it should perform after
├ └ 5-1. DATA RESET	replacing a MAIN board)
├ 6. CVT AUTO	For factory use
└ 7. HDMI INTR POSITION(+)	For factory use

Structure of Layers in Panel Factory Mode 1

1. PANEL INFORMATION	Version indication of the panel
2. PANEL WORKS	Indications of the accumulated power-on time, pulse-meter count, and power-on count of the panel
3. POWER DOWN	Indication of the Power-down history
4. SHUT DOWN	Indication of the Shutdown history
5. PANEL-1 ADJ (+)	
├ 1. X-SUS B	Modification not required because these items are basically for factory presetting
├ 2. Y-SUS B	
├ 3. Y-SUSTAIL T1	
├ 4. Y-SUSTAIL T2	
├ 5. Y-SUSTAIL W	
├ 6. XY-RST W1	
├ 7. XY-RST W2	
├ 8. VOL SUS	Settings required after replacement of the panel
├ 9. VOL OFFSET	
├ 10. VOL RST P	
└ 11. SUS FREQ.	For AM noise prevention (Depending on the mode, brightness of the screen changes.)
6. PANEL-2 ADJ (+)	
├ 1. R-HIGH	Parameters for the WB adjustment of the panel, which are required during adjustment after panel replacement
├ 2. G-HIGH	
├ 3 .B-HIGH	
├ 4. R-LOW	
├ 5. G-LOW	
├ 6. B-LOW	
└ 7. ABL	Setting of the power consumption. A setting table is available for each vertical signal.

To "Structure of Layers in Panel Factory Mode 2"

Structure of Layers in Panel Factory Mode 2

7. PANEL REVISE (+)	
├ R-LEVEL	Items for use by engineers
├ G-LEVEL	
├ B-LEVEL	
8. ETC (+)	
├ 1. BACKUP DATA	For transferring backup data (after replacement of the DIGITAL Assy)
├ 2. DIGITAL EEPROM	To clear data of the digital video
├ 3. PD INFO.	For clearance of data for the corresponding items. The clearing method is the same: Select "CLEAR", using [➡], then hold [SET] pressed for at least 5 seconds. After clearance is completed, {ETC} is automatically selected.
├ 4. SD INFO.	
├ 5. HR-MTR INFO.	
├ 6. PM/B1-B5	
├ 7. P COUNT INFO.	
└ 8. MAX TEMP.	
9. RASTER MASK SETUP (+)	
├ 1. MASK OFF	For use while Raster Mask (full mask) is displayed. Use [⬆] or [⬇] to select the type of mask.
├ 2. RST MASK 01	
≈ • • • • •	
└ 25. RST MASK 24	
10. PATTEN MASK SETUP (+)	
├ 1. MASK OFF	For use while Pattern Mask is displayed. Use [⬆] or [⬇] to select the type of mask.
├ 2. PTN MASK 01	
≈ • • • • •	
└ 40. PTN MASK 39	
11. COMBI MASK SETUP (+)	
├ 1. MASK OFF	For use while Combination Mask is displayed. Use [⬆] or [⬇] to select the type of mask.
├ 2. CMB MASK 01	
≈ • • • • •	
└ 11. CMB MASK 10	

2. CONTRAST OF MISCELLANEOUS PARTS

NOTES:
- *Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *Screws adjacent to ▼ mark on product are used for disassembly.*
- *Reference Nos. indicate the pages and Nos. in the service manual for the base model.*
- *For the applying amount of lubricants or glue, follow the instructions in this manual. (In the case of no amount instructions, apply as you think it appropriate.)*
- *When ordering resistors, first convert resistance values into code form as shown in the following examples.*

Ex.1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J=5%, and K=10%).

560 Ω → 56 × 10¹ → 561 ..... RD1/4PU [5][6][1] J
47k Ω → 47 × 10³ → 473 ..... RD1/4PU [4][7][3] J
0.5 Ω → R50 ..... RN2H [R][5][0] K
1 Ω → 1R0 ..... RS1P [1][R][0] K

Ex.2 When there are 3 effective digits (such as in high precision metal film resistors).

5.62k Ω → 562 × 10¹ → 5621 ..... RN1/4PC [5][6][2][1] F

■ CONTRAST TABLE

PDP-427XG/DLFR, PDP-427XDA/YP and PDP-427XA/WYV5 are constructed the same except for the following :

Ref. No.	Mark	Symbol and Description	Part No. PDP-427XA /WYV5	Part No. PDP-427XG /DLFR	Part No. PDP-427XDA /YP	Remarks
		PCB ASSEMBLIES				
P23- 1		MAIN ASSY	AWV2318	AWV2322	AWV2322	
	NSP	IO ASSY	AWV2319	AWV2323	AWV2323	
P23- 2		├TANSHI ASSY	AWW1161	AWW1164	AWW1164	
P13- 2		├SIDE ASSY	AWW1162	AWW1165	AWW1165	
P23- 3		└PC ASSY	AWW1163	AWW1166	AWW1166	
P19- 4		42 Y DRIVE ASSY	AWV2400	AWV2371	AWV2371	
	NSP	42 DIGITAL ASSY	AWV2435	AWV2372	AWV2372	
P19- 5		└42 DIGITAL ASSY	AWW1240	AWW1193	AWW1193	
		PACKING SECTION				
P11- 1	⚠	Power Cord (2 m)	ADG1214	Not used	ADG1245	
P11- 2		Power Cord LID	AHC1085	AHC1085	Not used	
P11- 3		Remote Control Unit	AXD1540	AXD1543	AXD1542	
P11- 4		Battery Cover	AZN2626	AZA7424	AZA7424	
P11- 5		Operating Instructions (Italian, Dutch, Spanish)	ARC1563	Not used	Not used	
P11- 6		Operating Instructions (English, French, German)	ARE1429	Not used	Not used	
		Operating Instructions (English, Spanish, Portguese(B), Trad-Chinese)	Not used	ARE1434	Not used	
		Operating Instructions (English)	Not used	Not used	ARB1570	
P11- 8	NSP	Dry Cell Battery (R06, AA)	VEM1031	AEX1025	VEM1031	
P11-16	NSP	Polyethylene Bag	AHG1340	Not used	Not used	
P11-15	NSP	Warranty Card	ARY1114	Not used	ARY1192	
P11-24		Upper Carton	AHD3516	AHD3518	AHD3519	
	⚠NSP	AC Power Cord	Not used	ADG1232	Not used	Accessories
	⚠NSP	AC Power Cord	Not used	ADG1233	Not used	Accessories
	⚠NSP	AC Power Cord	Not used	ADG1234	Not used	Accessories
	⚠NSP	AC Power Cord	Not used	ADG1235	Not used	Accessories
	⚠NSP	AC Power Cord	Not used	ADG1236	Not used	Accessories
	⚠NSP	AC Power Cord	Not used	ADG1238	Not used	Accessories
	⚠NSP	AC Power Cord	Not used	ADG1239	Not used	Accessories
	⚠NSP	AC Power Cord	Not used	ADG1241	Not used	Accessories
	⚠NSP	AC Power Cord	Not used	ADG1242	Not used	Accessories
	⚠NSP	AC Power Cord	Not used	ADG1243	Not used	Accessories
	⚠NSP	AC Power Cord	Not used	ADG1244	Not used	Accessories
	⚠NSP	AC Power Cord	Not used	ADG1246	Not used	Accessories
		DTV Tuner Board	Not used	Not used	AXY1147	*
		Filter	Not used	Not used	CTX1054	No. 1

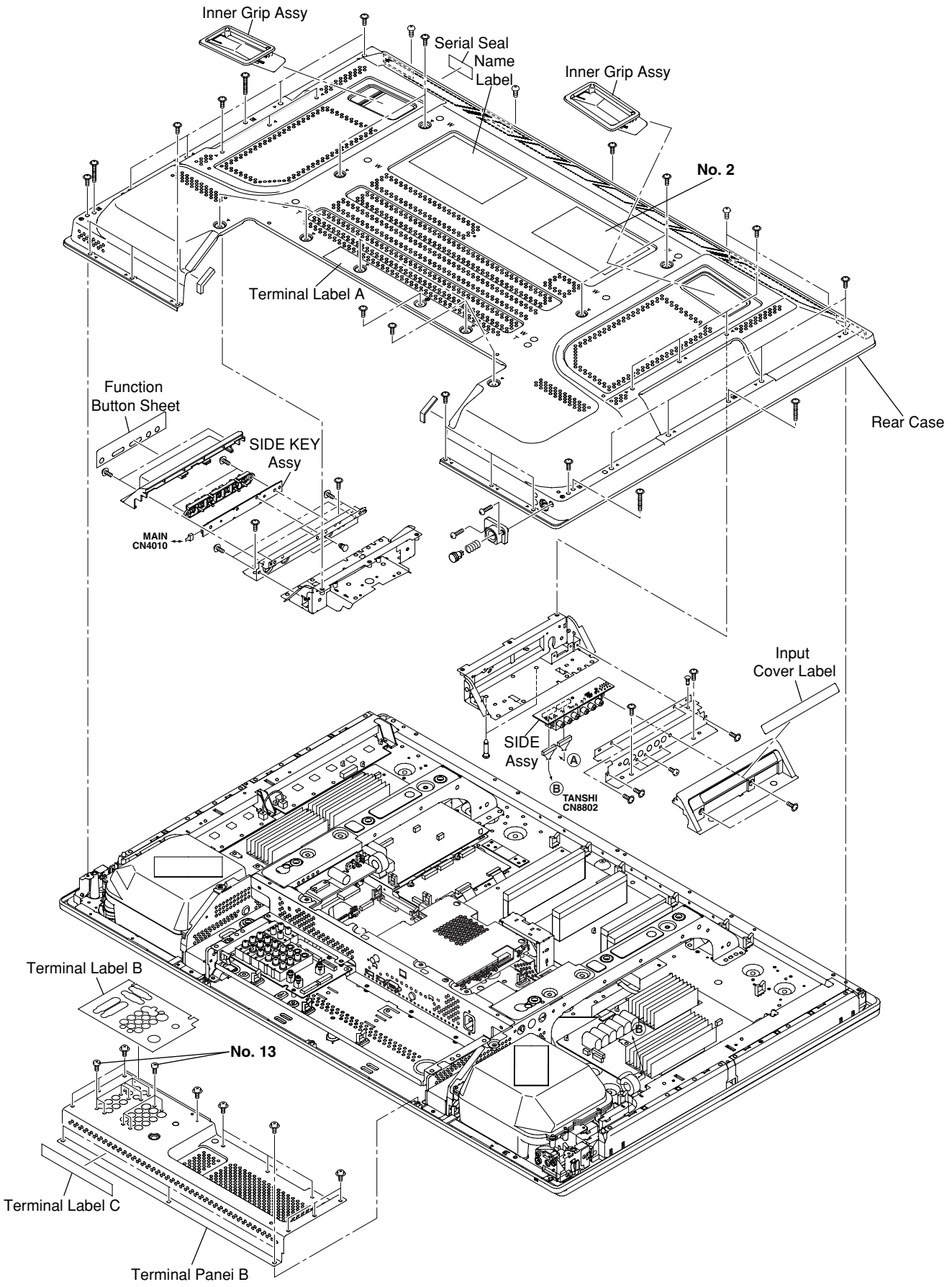
* DTV Tuner Board has no Service part.

Ref. No.	Mark	Symbol and Description	Part No. PDP-427XA /WYV5	Part No. PDP-427XG /DLFR	Part No. PDP-427XDA /YP	Remarks
		REAR SECTION				
P13-13	NSP	Name Label	AAL2805	AAL2807	AAL2808	
P13-18		Terminal Label A	AAX3332	AAX3386	AAX3345	
P13-19		Terminal Label C	AAX3339	AAX3336	AAX3336	
P13-20		Terminal Label B	AAX3417	AAX3420	AAX3420	
P13-21		Terminal Panel B	ANC2403	Not used	Not used	
P13-21		Terminal Panel B (42G)	Not used	ANC2404	ANC2404	
		Label	Not used	AAX3446	Not used	No. 2
		Screw	Not used	Not used	ABZ30P060FTC	No. 3
		FRONT SECTION				
P15-10		Front Case ASSY	AMB2969	AMB2969	AMB2957	
		PANEL CHASSIS SECTION				
P21- 1	NSP	Panel Chassis (427S) ASSY	AWU1207	AWU1191	AWU1191	
		PDP SERVICE PANEL ASSY				
P24- 1		PDP SERVICE PANEL ASSY (427)	AWU1208	AWU1225	AWU1225	
		MULTI BASE SECTION				
P23- 1		MAIN ASSY	AWV2318	AWY2322	AWY2322	
P23- 9		Flexible Cable (J214)	Not used	Not used	ADD1450	No. 4
P23- 15		Flexible Cable (J215)	Not used	Not used	ADD1451	No. 5
P23- 16		12P Housing Wire (J126)	Not used	Not used	ADX3390	No. 6
P23- 35		Multi Base Assy	ANA2019	ANA2019	ANA1952	
P23- 36		Terminal Panel A	ANC2399	ANC2399	Not used	
P23- 36		Terminal Panel A (AU)	Not used	Not used	ANC2416	
P23- 41	⚠	Gasket ED	Not used	Not used	ANK1863	No. 7
P23- 45		Screw	Not used	Not used	BBZ30P060FTB	No. 8
P23- 47		Screw	Not used	Not used	PMB30P080FNI	No. 9
	⚠	Gasket AD	Not used	Not used	ANK1859	No. 10
		Bottom Can	Not used	Not used	XNA1005	No. 11
		Top Can	Not used	Not used	XNG1002	No. 12
P13-36		Screw	BPZ30P080FTB	BPZ30P080FTB	BPZ30P080FTB	No. 13

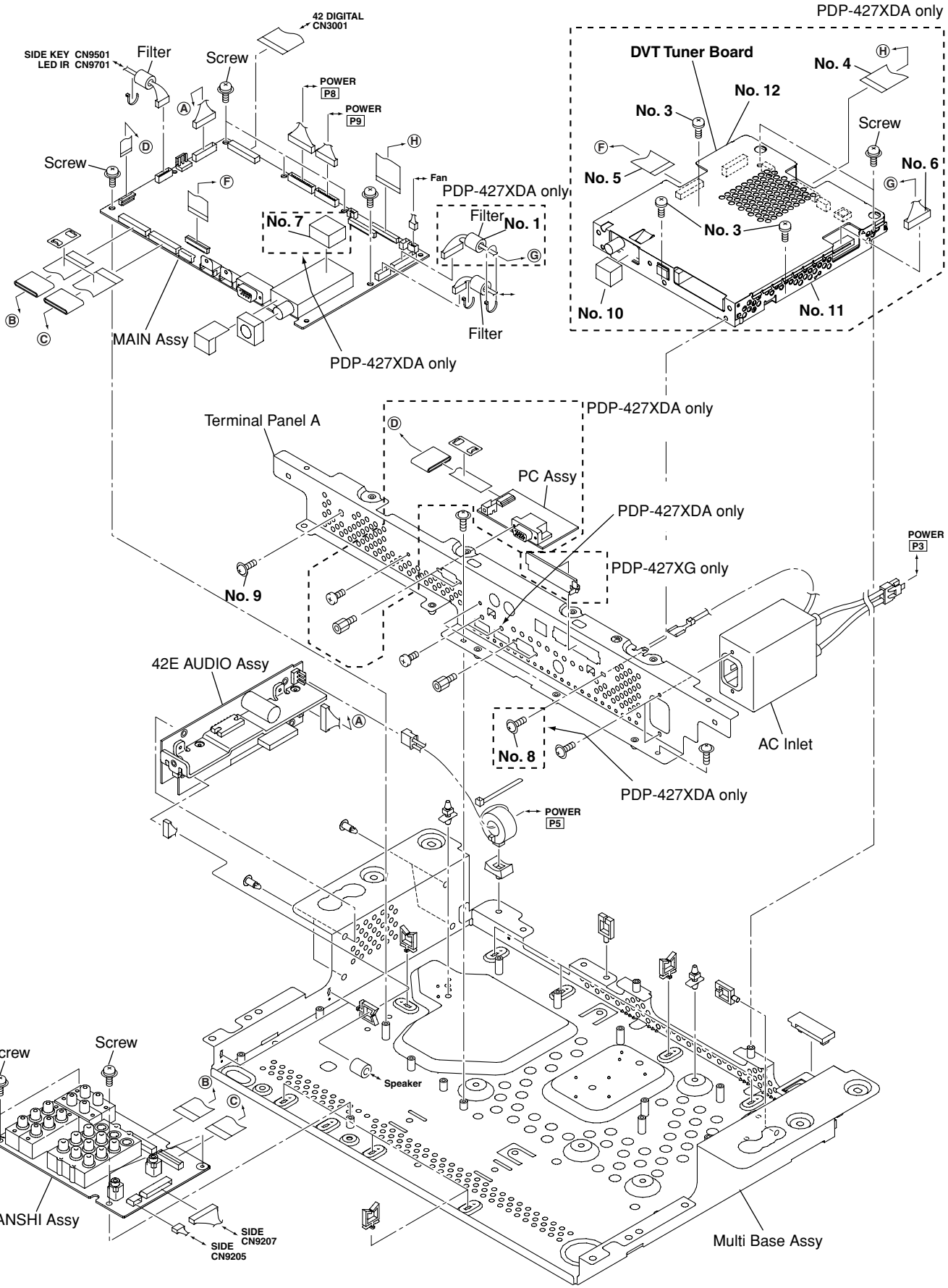
Notes : ÷The numbers in the remarks column correspond to the numbers on the " EXPLODED VIEWS ".
÷ For PCB ASSEMBLIES, Refer to "CONTRAST OF PCB ASSEMBLIES", "9. SCHEMATIC DIAGRAM" and "10 PCB CONNECTION DIAGRAM" .

■ EXPLODED VIEWS

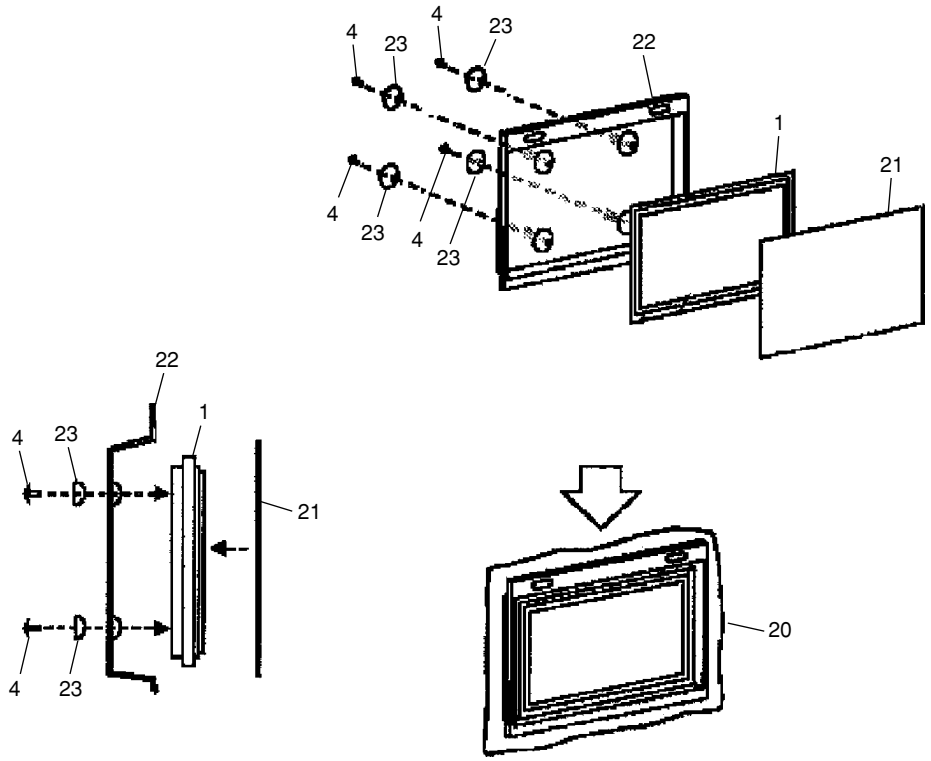
• EXTERIOR (Rear Section)



• EXTERIOR (Mult Base Section)



• PDP SERVICE PANEL ASSY 427 (AWU1225)



PDP SERVICE PANEL ASSY 427 (AWU1225) PARTS LIST

Mark	No.	Description	Part No.
NSP	1	Panel Chassis (427) Assy	AWU1191
	2	Caution Label	AAX3031
NSP	3	Drive Voltage Label	ARW1097
	4	Screw	PMB50P150FTC
	5	Screw	ABA1351
	6	Wire Saddle	AEC1745
	7	PCB Support	AEC1938
	8	Vinyl Bag S	AHG1338
NSP	9	Vinyl Bag	AHG1340
	10	Y Drive Protection Sheet A	AMR3632
	11	Power Sheet (427) A	AMR3648
	12	Address Gasket (42)	ANK1877
	13	Rivet A	BEC1158
	14	Pad 42SINGLE(T-L)	AHA2550
	15	Pad 42SINGLE(T-R)	AHA2551
	16	Pad 42SINGLE(B-L)	AHA2552
	17	Pad 42SINGLE(B-R)	AHA2553
	18	Upper Carton (42SINGLE)	AHD3480
	19	Under Carton (42SINGLE)	AHD3481
	20	Polyethylene Bag	AHG1381
	21	Packing Sheet	AHG1386
	22	Tray (FT)	AHX1158
	23	Cup Spacer (15)	ANG2936

■ CONTRAST OF PCB ASSEMBLIES

SIDE ASSY

Although AWW1162 and AWW1165 are different in part number, they consist of the same components.

PC ASSY

Although AWW1163 and AWW1166 are different in part number, they consist of the same components.

42 DIGITAL ASSY

AWW1193 and AWW1240 are constructed the same except for the following :

• DIGITAL IF BLOCK

Mark	Symbol and Description	Part No.		Remarks
		AWW1240	AWW1193	
	R3003,R3025	Not used	RS1/16SS0R0J	

TANSHI ASSY

AWW1164 and AWW1161 are constructed the same except for the following :

Mark	Symbol and Description	Part No.		Remarks
		AWW1161	AWW1164	
	D 9001	Not used	1SS301	
	D 9012	Not used	UDZS5R1(B)	
	D 9013	1SS301	UDZS5R1(B)	
	D 9015, 9016	UDZS5R1(B)	Not used	
	Q 8801- 8804	HN1A01FU	Not used	
	Q 8805- 8808, 9019- 9020	2SA1586	Not used	
	Q 8809- 8811	UMD2N	Not used	
	Q 8812, 8814, 8821, 8823, 8825- 8829	2SC4116	Not used	
	Q 8832	2SC4116	Not used	
	Q 8813	HN1C01FU	Not used	
	Q 9001	HN1B04FU	HN1A01FU	
	Q 9002	Not used	HN1A01FU	
	Q 9003, 9004	Not used	2SA1586	
	Q 9005	Not used	UMD2N	
	Q 9006	Not used	2SD2114K	
	Q 9007, 9008, 9014	Not used	2SC4116	
	Q 9009, 9011	2SC4116	2SD2114K	
	Q 9010	2SC4116	HN1B04FU	
	Q 9012	HN1A01FU	2SC4116	
	Q 9013	UMD2N	2SC4116	
	Q 9016	2SD2114K	UMD2N	
	Q 9017, 9018	2SD2114K	Not used	
	C 8801, 8814, 8816	DCH1201	Not used	
	C 8802	DCH1165	Not used	
	C 8803	CKSSYF104Z16	Not used	
	C 8804, 8805	CCG1205	Not used	
	C 8807	Not used	CKSRYB102K50	
	C 8808, 8809	Not used	CKSRYB105K10	
	C 8810	CCG1205	CKSRYB102K50	
	C 8811	CCG1205	CKSSYB471K50	
	C 8812	DCH1201	CKSSYB471K50	
	C 8813	CKSSYF104Z16	CKSSYB471K50	
	C 8815	DCH1165	Not used	
	C 8817	DCH1201	CKSSYB103K16	
	C 8818	CKSSYF104Z16	CKSSYB103K16	

Mark	Symbol and Description	Part No.		Remarks
		AWW1161	AWW1164	
	C 8819	DCH1165	CKSRYB105K10	
	C 8820, 8821, 9037, 9045, 9046	CCG1205	CKSRYB105K10	
	C 8822, 8823, 9036, 9055- 9058	Not used	CKSRYB105K10	
	C 8825	CKSRYB102K50	CKSRYB105K10	
	C 8826- 8836, 8857, 8858	CKSSYB102K50	Not used	
	C 8837- 8839	ACH1454	Not used	
	C 8840- 8848, 8850, 8851, 8853- 8856	CKSRYB105K10	Not used	
	C 9001	CKSSYF104Z16	CKSSYB473K16	
	C 9002	CKSSYB103K16	CKSSYB473K16	
	C 9003, 9049	Not used	CKSSYB473K16	
	C 9004	Not used	CKSSYF104Z16	
	C 9006	DCH1165	Not used	
	C 9007	DCH1201	DCH1165	
	C 9008, 9009	CKSSYB104K10	CCG1205	
	C 9010	CKSSYB471K50	CCG1205	
	C 9011	CKSSYB471K50	DCH1201	
	C 9012	CKSSYB471K50	Not used	
	C 9013	CKSSYF104Z16	CKSSYB103K16	
	C 9014	DCH1201	CKSSYB103K16	
	C 9015, 9020	Not used	CKSSYB102K50	
	C 9016, 9018- 9019, 9021, 9024, 9027	Not used	CKSSYB103K16	
	C 9017	CEHVKW470M6R3	CKSSYB102K50	
	C 9022, 9025	CKSRYB105K10	CKSSYB102K50	
	C 9023	CKSSYB102K50	CKSSYB103K16	
	C 9026	CKSRYB102K50	CKSSYB102K50	
	C 9028- 9030	CKSRYB105K10	Not used	
	C 9031	CKSRYB102K50	CKSSYF104Z16	
	C 9032	CKSRYB102K50	CEHVKW470M6R3	
	C 9038	CKSSYB473K16	CKSRYB105K10	
	C 9039, 9040	CKSSYB103K16	CKSRYB105K10	
	C 9043	CKSRYB224K10	CKSRYB105K10	
	C 9044	CKSSYF104Z16	ACH1454	
	C 9047, 9048, 9059	Not used	CKSSYB103K16	
	C 9050, 9051	Not used	DCH1201	
	C 9052, 9053	Not used	DCH1165	
	C 9054	Not used	CKSRYB224K10	
	C 9060, 9061	Not used	CKSSYB104K10	
	F 8801- 8807	Not used	CTF1557	
	F 9001- 9007	CTF1557	Not used	
	R 8801, 8803	RS1/10S151J	RS1/16S75R0F	
	R 8802	RS1/10S121J	RS1/16S75R0F	
	R 8804, 8805,8807, 8809, 8810	RS1/10S151J	Not used	
	R 8806, 8808	RS1/10S121J	Not used	
	R 8822	RS1/16SS392J	RS1/16S75R0F	
	R 8823, 8824	RS1/16SS102J	RS1/16S75R0F	
	R 8839- 8841	RS1/16S75R0F	RS1/16SS0R0J	
	R 8866, 8894, 8898, 8915- 8917, 8922	RS1/16S75R0F	Not used	
	R 9006- 9008, 9012, 9013	RS1/16SS101J	RS1/16S75R0F	
	R 9014, 9021- 9023	Not used	RS1/16S75R0F	
	R 9037, 9038	RS1/16S75R0F	RS1/16SS181J	
	R 9040	RS1/16S75R0F	RS1/16SS103J	
	R 9046, 9047	RS1/16S75R0F	RS1/16SS222J	
	R 9048	RS1/16S75R0F	RS1/16S821J	
	R 9072	RS1/16SS472J	RS1/16S75R0F	
	R 9074, 9075	RS1/16SS152J	RS1/16S75R0F	

AWW1164 and AWW1161 are constructed the same except for the following :

Mark	Symbol and Description	Part No.		Remarks
		AWW1161	AWW1164	
	CN 8801 (50P CONNECTOR PBF)	Not used	AKM1349	
	CN 8802 (50P CONNECTOR PBF)	AKM1349	Not used	
	JA 8801 (RGB CONNECTOR)	AKP1295	VKN1449	
	JA 8802 (RGB CONNECTOR)	AKP1295	Not used	
	JA 8803	AKP1295	AKN1081	
	JA 8804, 8805 (3P PIN JACK)	Not used	AKB1332	
	JA 9001 (3P PIN JACK)	AKB1332	AKB1339	
	JA 9002 (MINI JACK)	VKN1449	AKB1331	
	JA 9003 (9P 3S PIN JACK)	Not used	AKB1334	
	JA 9004 (4POLE MINI JACK)	AKN1081	Not used	
	JA 9005 (3P PIN JACK)	AKB1340	Not used	

MAIN ASSY

AWV2322 and AWV2318 are constructed the same except for the following :

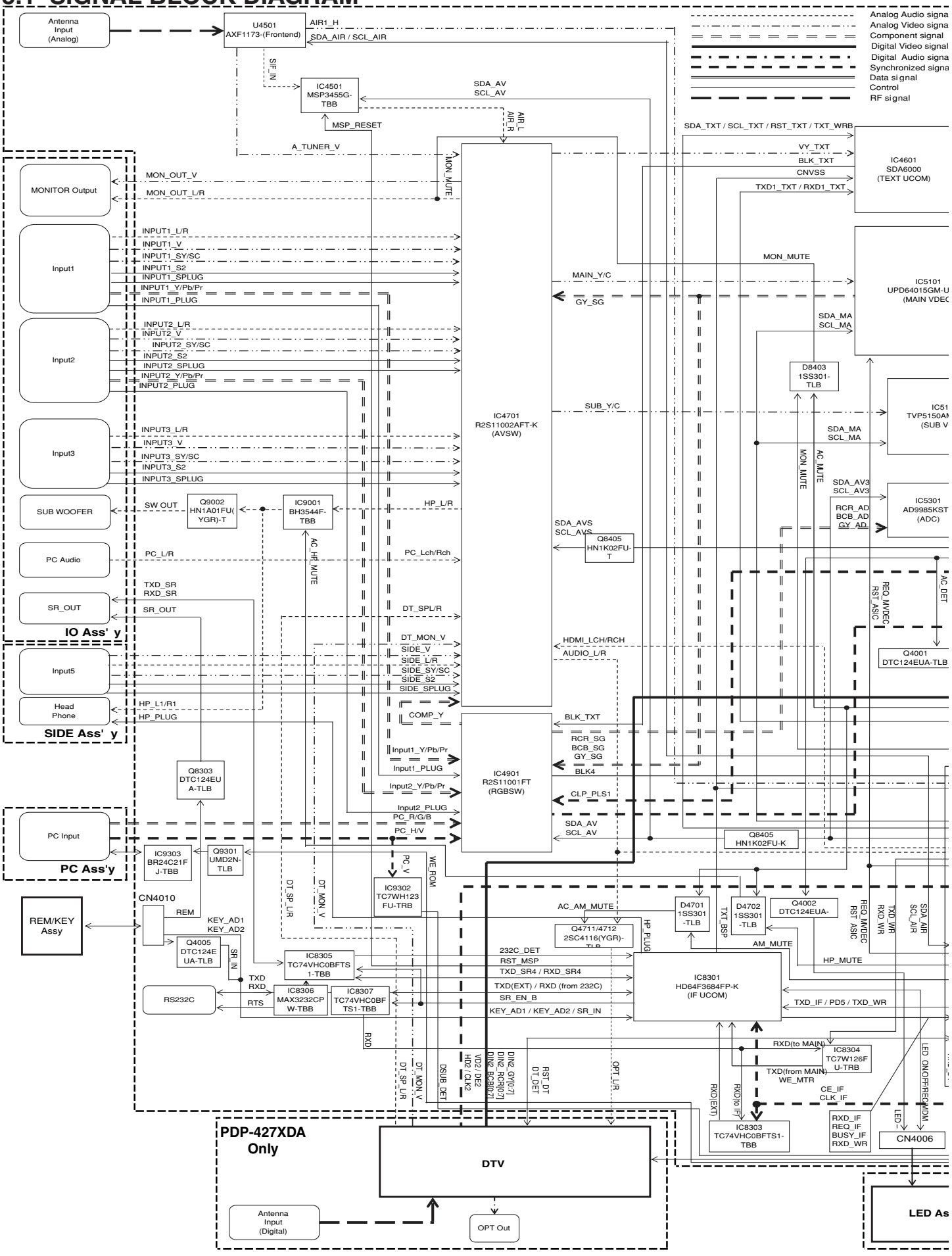
Mark	Symbol and Description	Part No.		Remarks
		AWV2318	AWV2322	
	[BOARD IF BLOCK]			
	R 4027, 4028	RS1/16SS473J	RS1/16SS0R0J	
	R 4032, 4033, 4056	RS1/16SS0R0J	Not used	
	R 4034	RS1/16SS0R0J	RS1/16SS473J	
	R 4058	Not used	RS1/16SS0R0J	
	[REG 0 BLOCK]			
	R 4199	Not used	RS1/16S0R0J	
	F 4102	VTF1080	Not used	
	[ATUNER BLOCK]			
⚠	U 4501 (FRONT END)	AXF1172	AXF1173	
	IC 4501	MSP3417G	MSP3455G	
	Q 4501	DTC124EUA	Not used	
	C 4520	CEHVKW101M6R3	Not used	
	C 4522	Not used	ACH1429	
	[AV SW BLOCK]			
	IC 4703	PCM1803DB	Not used	
	IC 4704	NJU26901E2	Not used	
	IC 4705	PCM1754DBQ	Not used	
	IC 4706	NJM12904V	Not used	
	Q 4718	DTA124EUA	Not used	
	Q 4719, 4720	2SC4116	Not used	
	Q 4722, 4723	HN1B04FU	Not used	
	C 4701, 4761, 4763, 4764, 4766	CKSSYF104Z16	Not used	
	C 4702, 4708, 4736, 4742, 4759, 4760	CKSRYB105K10	Not used	
	C 4709, 4738, 4743	Not used	CKSRYB105K10	
	C 4722, 4762, 4765, 4769- 4771	DCH1201	Not used	
	C 4767, 4768	DCH1165	Not used	
	C 4772- 4774	CKSSYF104Z16	Not used	
	C 4775, 4776	CKSSYF681K50	Not used	
	C 4777, 4779,	CKSSYB152K50	Not used	
	C 4778	CCSSCH221J50	Not used	
	C 4780- 4783	CKSRYB105K10	Not used	
	C 4784, 4785	CKSSCH331J50	Not used	
	X 4701 (CRYSTAL)	ASS1204	Not used	

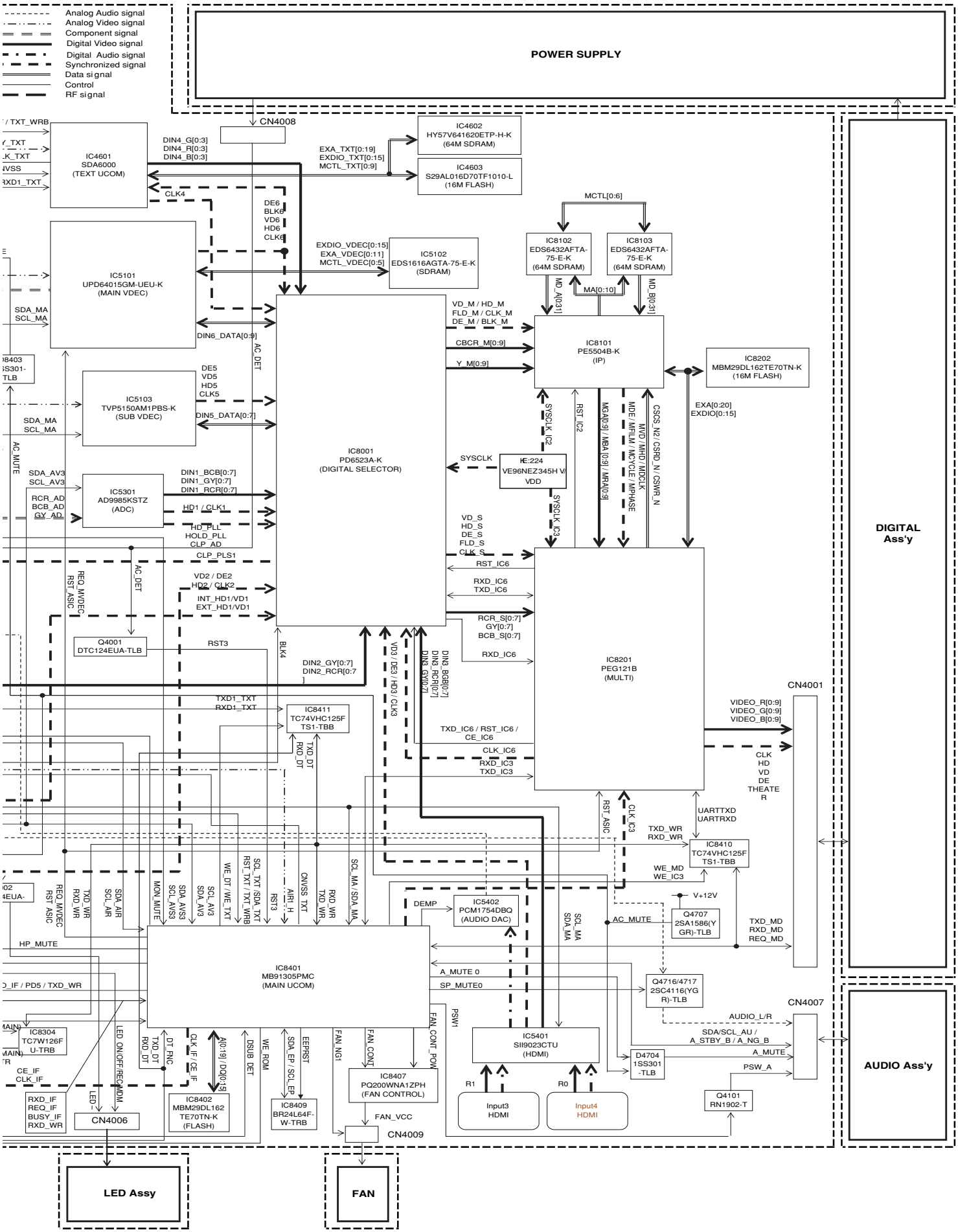
AWV2322 and AWV2318 are constructed the same except for the following :

Mark	Symbol and Description	Part No.		Remarks
		AWV2318	AWV2322	
	R 4815- 4817	RS1/10S0R0J	Not used	
	R 4849	RS1/16S472J	Not used	
	R 4851, 4852	RS1/16S182J	Not used	
	R 4853	RS1/16S222J	Not used	
	R 4860, 4861,4863, 4865	RS1/16S102J	Not used	
	R 4866	RAB4CQ470J	Not used	
	[RGB SW BLOCK]			
	D 4901- 4903	UDZS4R7(B)	Not used	
	Q 4901- 4903	2SA1586	Not used	
	Q 4904, 4906	HN1B04FU	Not used	
	C 4911, 4935	CKSRYB474K10	Not used	
	C 4916, 4929- 4931	CKSSYF104Z16	Not used	
	R 4913- 4918	RS1/16SS3301F	Not used	
	R 4919	RS1/16SS5600F	Not used	
	R 4921, 4928, 4932	RS1/16SS75R0F	Not used	
	R 4926, 4930	RS1/16SS5600F	Not used	
	[VDEC BLOCK]			
	C 5110- C5112	Not used	CKSSYB104K10	
	C 5136, 5140, 5150	CKSSYB103K16	Not used	
	R 5111	Not used	RS1/16SS103J	
	[IF UCOM BLOCK]			
	IC 8308	TC74VHC00FTS1	Not used	
	Q 8306, 8308	DTC124EUA	Not used	
	Q 8307, 8312	2SA1586	Not used	
	Q 8309, 8313	2SC4116	Not used	
	Q 8310, 8314	HN1C01FU	Not used	
	D 8304, 8305	1SS355	Not used	
	R 8368, 8371, 8374, 8378, 8381	RS1/16SS103J	Not used	
	R 8350, 8384, 8385	Not used	RS1/16SS103J	
	[MAIN UCOM BLOCK]			
	D 8404, 8405	1SS301	Not used	
	[DSEL BLOCK]			
	R 8017	RS1/16SS101J	Not used	

3. BLOCK DIAGRAM

3.1 SIGNAL BLOCK DIAGRAM



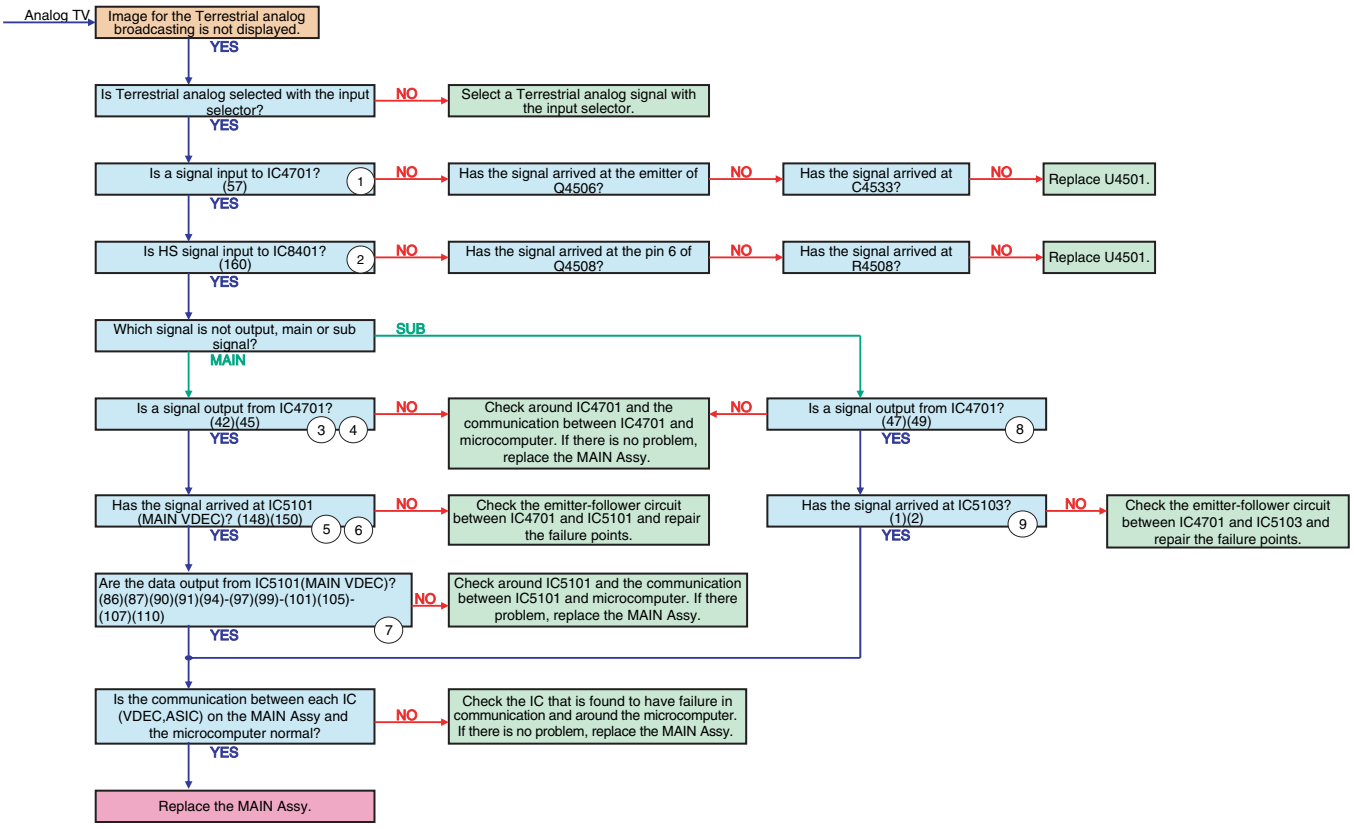

Analog Audio signal
Analog Video signal
Component signal
Digital Video signal
Digital Audio signal
Synchronized signal
Data signal
Control
RF signal
POWER SUPPLY
CN4008
IC4601
SDA6000
(TEXT UCOM)
IC4602
HY57V641620ETP-H-K
(64M SDRAM)
IC4603
S29AL016D70TF1010-L
(16M FLASH)
IC5101
UPD64015GM-UEU-K
(MAIN VDEC)
IC5102
EDS1616AGTA-75-E-K
(SDRAM)
IC8102
EDS6432AFTA-75-E-K
(64M SDRAM)
IC8103
EDS6432AFTA-75-E-K
(64M SDRAM)
IC8001
PD6523A-K
(DIGITAL SELECTOR)
IC8101
PE5504B-K
(IP)
IC8202
MBM29DL162TE70TN-K
(16M FLASH)
IC5103
TVP5150AM1PBS-K
(SUB VDEC)
IC5301
AD9985KSTZ
(ADC)
IC8201
PEG121B
(MULTI)
Q4001
DTC124EUA-TLB
IC8411
TC74VHC125F
TS1-TBB
IC8410
TC74VHC125F
TS1-TBB
IC8401
MB91305PMC
(MAIN UCOM)
IC5402
PCM1754DBQ
(AUDIO DAC)
IC5401
SII9023CTU
(HDMI)
IC8407
PQ200WNA1ZPH
(FAN CONTROL)
IC8402
MBM29DL162
TE70TN-K
(FLASH)
IC8409
BR24L64F-
W-TRB
IC8304
TC7W126F
U-TRB
Q4707
2SA1586(Y
GR)-TLB
Q4716/4717
2SC4116(YG
R)-TLB
D4704
1SS301
-TLB
Q4101
RN1902-T
CN4001
CN4007
CN4006
CN4009
DIGITAL
Ass'y
AUDIO Ass'y
LED Assy
FAN
Input3
HDMI
Input4
HDMI
MCTL[0:6]
MA[0:10]
MD_A[0:31]
MD_B[0:31]
EXA_TXT[0:19]
EXDIO_TXT[0:15]
MCTL_TXT[0:9]
EXDIO_VDEC[0:15]
EXA_VDEC[0:11]
MCTL_VDEC[0:5]
VD_M / HD_M
FLD_M / CLK_M
DE_M / BLK_M
CBCR_M[0:9]
Y_M[0:9]
EXA[0:20]
EXDIO[0:15]
SYSCLK
SYSCLK_IC2
SYSCLK_IC3
RST_IC2
MGA[0:9] / MBA[0:9] / MRA[0:9]
MDE / MFILM / MCYCLE / MPHASE
MVD / MHD / MDCLK
CSCS_N2 / CSRD_N / CSWR_N
VD_S
HD_S
DE_S
FLD_S
CLK_S
RST_IC6
RXD_IC6
TXD_IC6
RCR_S[0:7]
GY[0:7]
BCB_S[0:7]
DIN1_BCB[0:7]
DIN1_GY[0:7]
DIN1_RCR[0:7]
DIN2_GY[0:7]
DIN2_RCR[0:7]
DIN3_BGB[0:7]
DIN3_RCR[0:7]
DIN3_GY[0:7]
VIDEO_R[0:9]
VIDEO_G[0:9]
VIDEO_B[0:9]
CLK
HD
VD
DE
THEATER
UARTTXD
UARTRXD
TXD_WR
RXD_WR
WE_MD
WE_IC3
V+12V
AC_MUTE
TXD_MD
RXD_MD
REQ_MD
HP_MUTE
A_MUTE 0
SP_MUTE0
AUDIO_L/R
SDA/SCL_AU /
A_STBY_B / A_NG_B
A_MUTE
PSW_A
PSW1
DEMP
SDA_MA
SCL_MA
DIN6_DATA[0:9]
DIN5_DATA[0:7]
AC_DET
CLP_PLS1
VD2 / DE2
HD2 / CLK2
INT_HD1/VD1
EXT_HD1/VD1
HD1 / CLK1
HD_PLL
HOLD_PLL
CLP_AD
RST3
BLK4
VD3 / DE3 / HD3 / CLK3
TXD1_TXT
RXD1_TXT
TXD_DT
RXD_DT
CLK_IC6
RXD_IC3
TXD_IC3
RST_ASIC
CLK_IC3
REQ_MVDEC
RST_ASIC
SDA_AIR
SCL_AIR
MON_MUTE
SDA_AV3
SCL_AV3
WE_DT / WE_TXT
SCL_TXT /SDA_TXT
RST_TXT / TXT_WRB
AIR1 _H
RST3
CNVSS TXT
SCL_MA /SDA_MA
FAN_NG1
FAN_CONT
FAN_CONT_POW
EEPRST
SDA_EP / SCL_EP
WE_ROM
DSUB DET
A[0:19] / DQ[0:15]
CLK_IF / CE_IF
DT_FNC
LED_ON/OFF/REQ_MDM
RXD_IF
REQ_IF
BUSY_IF
RXD_WR
CE_IF
CLK_IF
R1
R0
FAN_VCC
RCR_AD
BCB_AD
GY_AD
SDA_MA
SCL_MA
SDA_AV3
SCL_AV3
AC_MUTE
DE6
BLK6
VD6
HD6
CLK6
DE5
VD5
HD5
CLK5
CLK4

4. DIAGNOSIS

4.1 TROUBLE SHOOTING

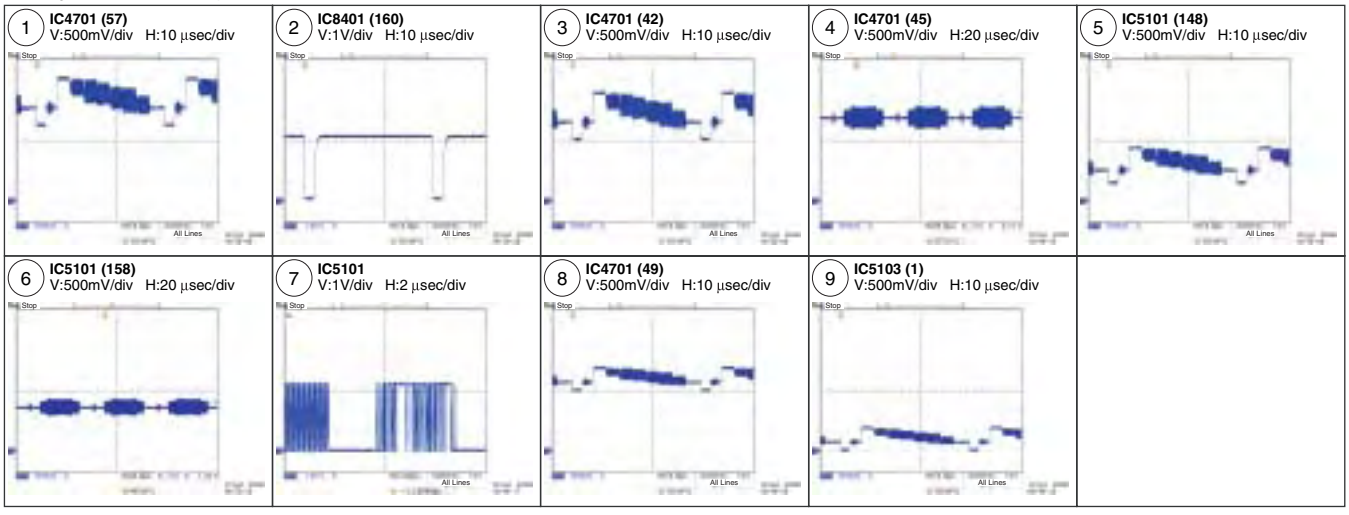
4.1.1 FLOWCHART OF FAILURE ANALYSIS FOR THE VIDEO SYSTEM

Flowchart of Failure Analysis for The Video-system Assy

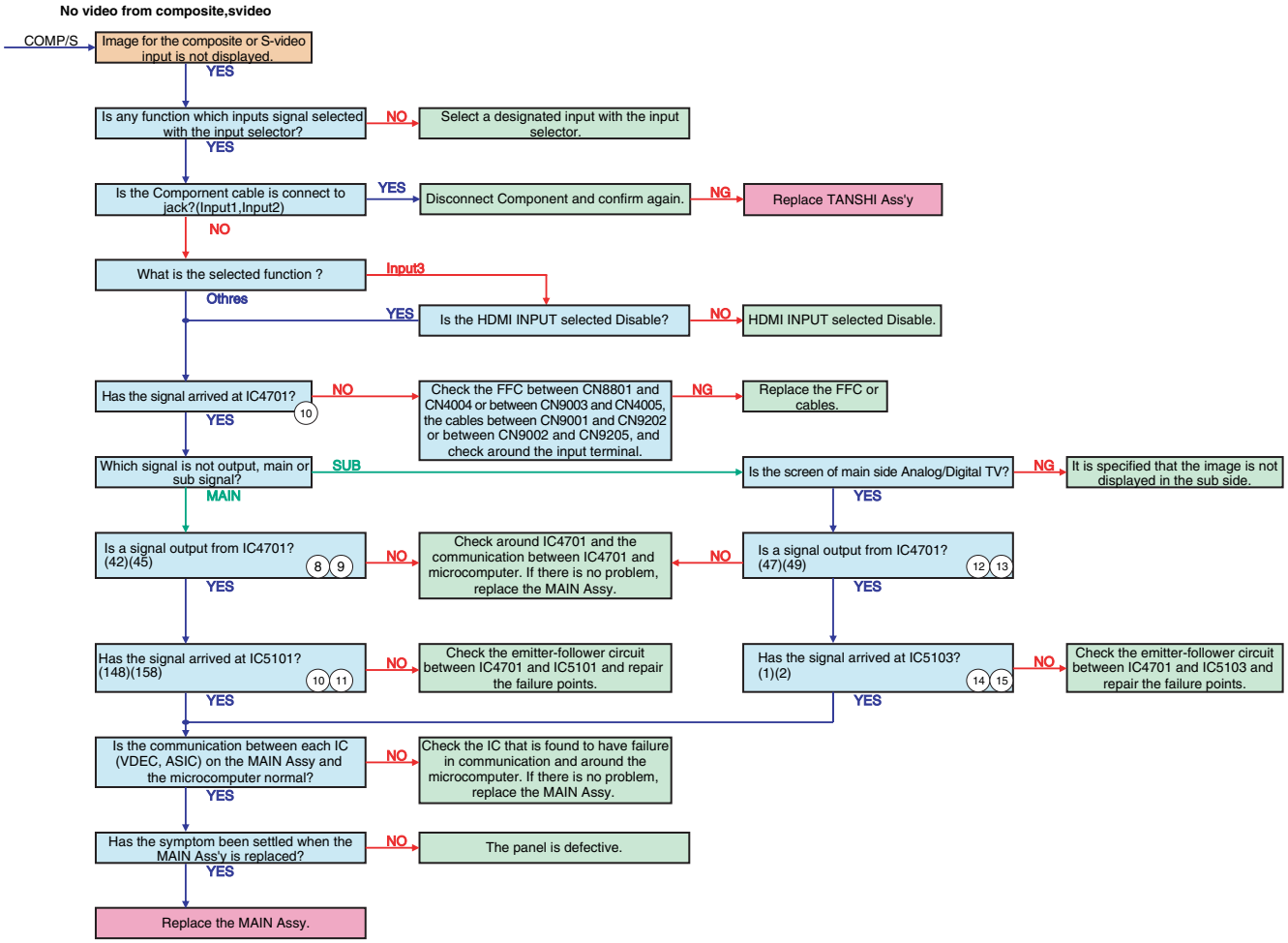

Analog TV
Image for the Terrestrial analog broadcasting is not displayed.
YES
Is Terrestrial analog selected with the input selector?
NO
Select a Terrestrial analog signal with the input selector.
YES
Is a signal input to IC4701? (57)
1
NO
Has the signal arrived at the emitter of Q4506?
NO
Has the signal arrived at C4533?
NO
Replace U4501.
YES
Is HS signal input to IC8401? (160)
2
NO
Has the signal arrived at the pin 6 of Q4508?
NO
Has the signal arrived at R4508?
NO
Replace U4501.
YES
Which signal is not output, main or sub signal?
SUB
MAIN
Is a signal output from IC4701? (42)(45)
3
4
NO
Check around IC4701 and the communication between IC4701 and microcomputer. If there is no problem, replace the MAIN Assy.
NO
Is a signal output from IC4701? (47)(49)
8
YES
YES
Has the signal arrived at IC5101 (MAIN VDEC)? (148)(150)
5
6
NO
Check the emitter-follower circuit between IC4701 and IC5101 and repair the failure points.
YES
Has the signal arrived at IC5103? (1)(2)
9
NO
Check the emitter-follower circuit between IC4701 and IC5103 and repair the failure points.
YES
Are the data output from IC5101(MAIN VDEC)? (86)(87)(90)(91)(94)-(97)(99)-(101)(105)-(107)(110)
7
NO
Check around IC5101 and the communication between IC5101 and microcomputer. If there problem, replace the MAIN Assy.
YES
Is the communication between each IC (VDEC,ASIC) on the MAIN Assy and the microcomputer normal?
NO
Check the IC that is found to have failure in communication and around the microcomputer. If there is no problem, replace the MAIN Assy.
YES
Replace the MAIN Assy.

• Waveforms

Analog tuner PAL Color Bar input


1 IC4701 (57) V:500mV/div H:10 µsec/div
2 IC8401 (160) V:1V/div H:10 µsec/div
3 IC4701 (42) V:500mV/div H:10 µsec/div
4 IC4701 (45) V:500mV/div H:20 µsec/div
5 IC5101 (148) V:500mV/div H:10 µsec/div
6 IC5101 (158) V:500mV/div H:20 µsec/div
7 IC5101 V:1V/div H:2 µsec/div
8 IC4701 (49) V:500mV/div H:10 µsec/div
9 IC5103 (1) V:500mV/div H:10 µsec/div

Flowchart of Failure Analysis for The Video-system Assy

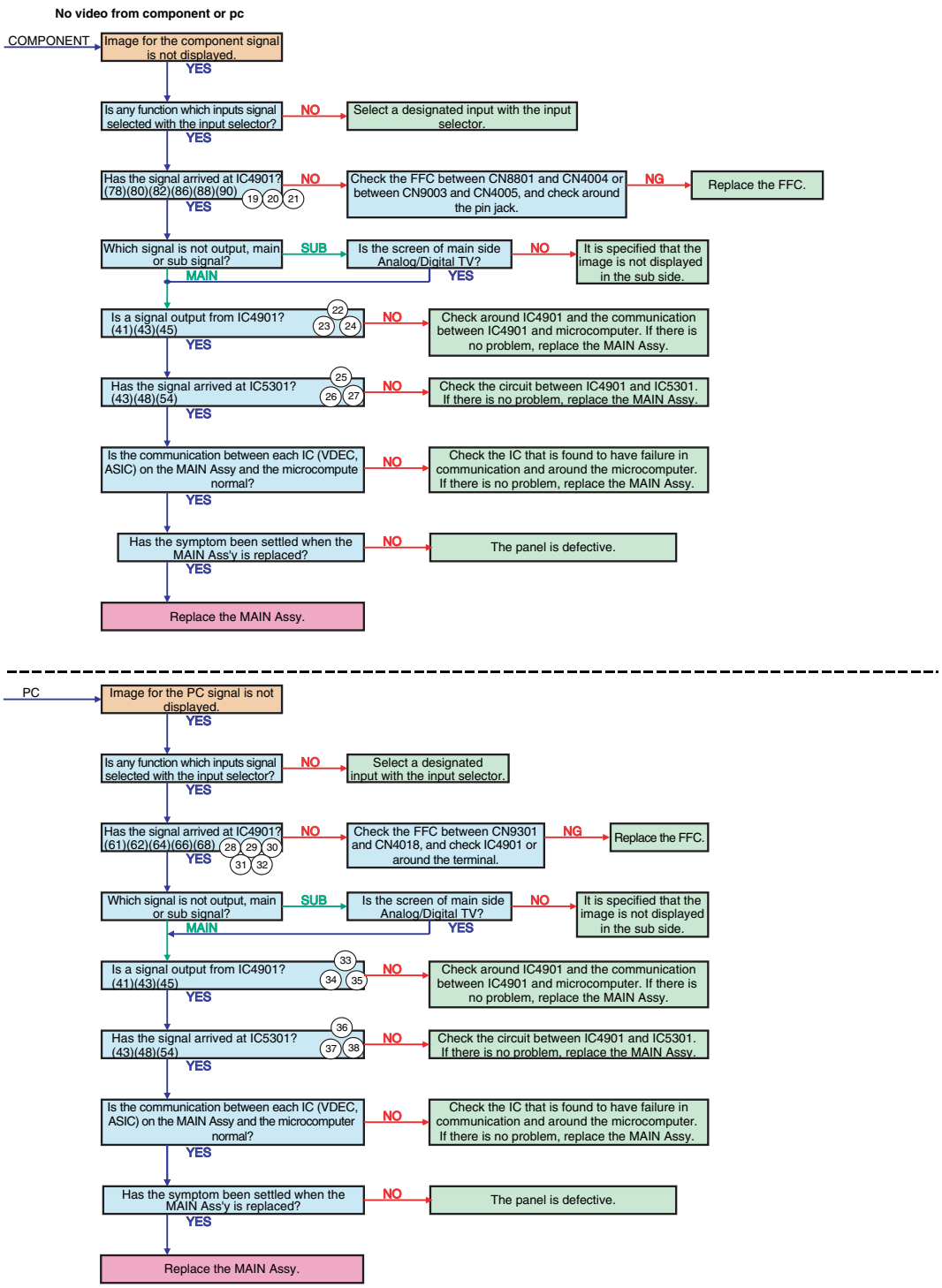

No video from composite,svideo
COMP/S
Image for the composite or S-video input is not displayed.
YES
Is any function which inputs signal selected with the input selector?
NO
Select a designated input with the input selector.
YES
Is the Compornent cable is connect to jack?(Input1,Input2)
YES
Disconnect Component and confirm again.
NG
Replace TANSHI Ass'y
NO
What is the selected function ?
Input3
Othres
YES
Is the HDMI INPUT selected Disable?
NO
HDMI INPUT selected Disable.
Has the signal arrived at IC4701?
10
NO
Check the FFC between CN8801 and CN4004 or between CN9003 and CN4005, the cables between CN9001 and CN9202 or between CN9002 and CN9205, and check around the input terminal.
NG
Replace the FFC or cables.
YES
Which signal is not output, main or sub signal?
SUB
Is the screen of main side Analog/Digital TV?
NG
It is specified that the image is not displayed in the sub side.
MAIN
YES
Is a signal output from IC4701? (42)(45)
8 9
NO
Check around IC4701 and the communication between IC4701 and microcomputer. If there is no problem, replace the MAIN Assy.
NO
Is a signal output from IC4701? (47)(49)
12 13
YES
YES
Has the signal arrived at IC5101? (148)(158)
10 11
NO
Check the emitter-follower circuit between IC4701 and IC5101 and repair the failure points.
Has the signal arrived at IC5103? (1)(2)
14 15
NO
Check the emitter-follower circuit between IC4701 and IC5103 and repair the failure points.
YES
YES
Is the communication between each IC (VDEC, ASIC) on the MAIN Assy and the microcomputer normal?
NO
Check the IC that is found to have failure in communication and around the microcomputer. If there is no problem, replace the MAIN Assy.
YES
Has the symptom been settled when the MAIN Ass'y is replaced?
NO
The panel is defective.
YES
Replace the MAIN Assy.

• Waveforms

Composite or S terminal PAL Color Bar input

10 **IC4701 (60)or(72)or(85)or(91)** V:500mV/div H:20 µsec/div	11 **IC4701 (42)** V:500mV/div H:20 µsec/div	12 **IC4701 (45)** V:500mV/div H:20 µsec/div	13 **IC5101 (148)** V:500mV/div H:20 µsec/div	14 **IC5101 (158)** V:500mV/div H:20 µsec/div
15 **IC4701 (47)** V:500mV/div H:20 µsec/div	16 **IC4701 (49)** V:500mV/div H:20 µsec/div	17 **IC5103 (1)** V:500mV/div H:20 µsec/div	18 **IC5103 (2)** V:500mV/div H:20 µsec/div	

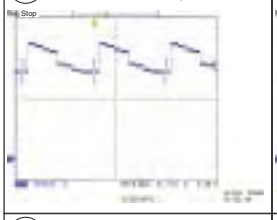
Flowchart of Failure Analysis for The Video-system Assy


No video from component or pc
COMPONENT
Image for the component signal is not displayed.
YES
Is any function which inputs signal selected with the input selector?
NO
Select a designated input with the input selector.
YES
Has the signal arrived at IC4901? (78)(80)(82)(86)(88)(90)
19 20 21
NO
Check the FFC between CN8801 and CN4004 or between CN9003 and CN4005, and check around the pin jack.
NG
Replace the FFC.
YES
Which signal is not output, main or sub signal?
SUB
Is the screen of main side Analog/Digital TV?
NO
It is specified that the image is not displayed in the sub side.
YES
MAIN
Is a signal output from IC4901? (41)(43)(45)
22 23 24
NO
Check around IC4901 and the communication between IC4901 and microcomputer. If there is no problem, replace the MAIN Assy.
YES
Has the signal arrived at IC5301? (43)(48)(54)
25 26 27
NO
Check the circuit between IC4901 and IC5301. If there is no problem, replace the MAIN Assy.
YES
Is the communication between each IC (VDEC, ASIC) on the MAIN Assy and the microcompute normal?
NO
Check the IC that is found to have failure in communication and around the microcomputer. If there is no problem, replace the MAIN Assy.
YES
Has the symptom been settled when the MAIN Ass'y is replaced?
NO
The panel is defective.
YES
Replace the MAIN Assy.
PC
Image for the PC signal is not displayed.
YES
Is any function which inputs signal selected with the input selector?
NO
Select a designated input with the input selector.
YES
Has the signal arrived at IC4901? (61)(62)(64)(66)(68)
28 29 30 31 32
NO
Check the FFC between CN9301 and CN4018, and check IC4901 or around the terminal.
NG
Replace the FFC.
YES
Which signal is not output, main or sub signal?
SUB
Is the screen of main side Analog/Digital TV?
NO
It is specified that the image is not displayed in the sub side.
YES
MAIN
Is a signal output from IC4901? (41)(43)(45)
33 34 35
NO
Check around IC4901 and the communication between IC4901 and microcomputer. If there is no problem, replace the MAIN Assy.
YES
Has the signal arrived at IC5301? (43)(48)(54)
36 37 38
NO
Check the circuit between IC4901 and IC5301. If there is no problem, replace the MAIN Assy.
YES
Is the communication between each IC (VDEC, ASIC) on the MAIN Assy and the microcomputer normal?
NO
Check the IC that is found to have failure in communication and around the microcomputer. If there is no problem, replace the MAIN Assy.
YES
Has the symptom been settled when the MAIN Ass'y is replaced?
NO
The panel is defective.
YES
Replace the MAIN Assy.

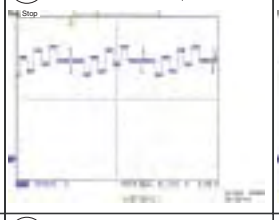
• Waveforms

Component 1080i Color Bar input

19 **IC4901 (78)or(86)** V:500mV/div H:10 µsec/div



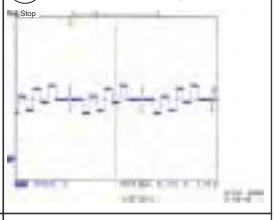
20 **IC4901 (80)or(88)** V:500mV/div H:10 µsec/div



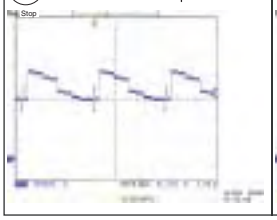
21 **IC4901 (82)or(90)** V:500mV/div H:10 µsec/div

22 **IC4901 (41)** V:500mV/div H:10 µsec/div

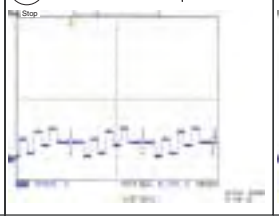
23 **IC4901 (43)** V:500mV/div H:10 µsec/div



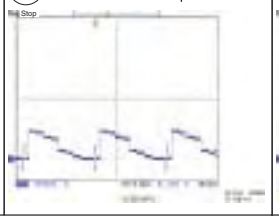
24 **IC4901 (45)** V:500mV/div H:10 µsec/div



25 **IC5301 (43)** V:500mV/div H:10 µsec/div



26 **IC5301 (48)** V:500mV/div H:10 µsec/div



27 **IC5301 (54)** V:500mV/div H:10 µsec/div

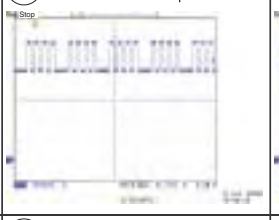
PC XGA/60Hz Color Bar input

28 **IC4901 (61)** V:1V/div H:2msec/div

29 **IC4901 (62)** V:1V/div H:10 µsec/div

30 **IC4901 (64)** V:500mV/div H:10 µsec/div

31 **IC4901 (66)** V:500mV/div H:10 µsec/div



32 **IC4901 (68)** V:500mV/div H:10 µsec/div

33 **IC4901 (41)** V:500mV/div H:10 µsec/div

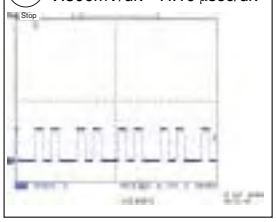
34 **IC4901 (43)** V:500mV/div H:10 µsec/div

35 **IC4901 (45)** V:500mV/div H:10 µsec/div

36 **IC5301 (43)** V:500mV/div H:10 µsec/div

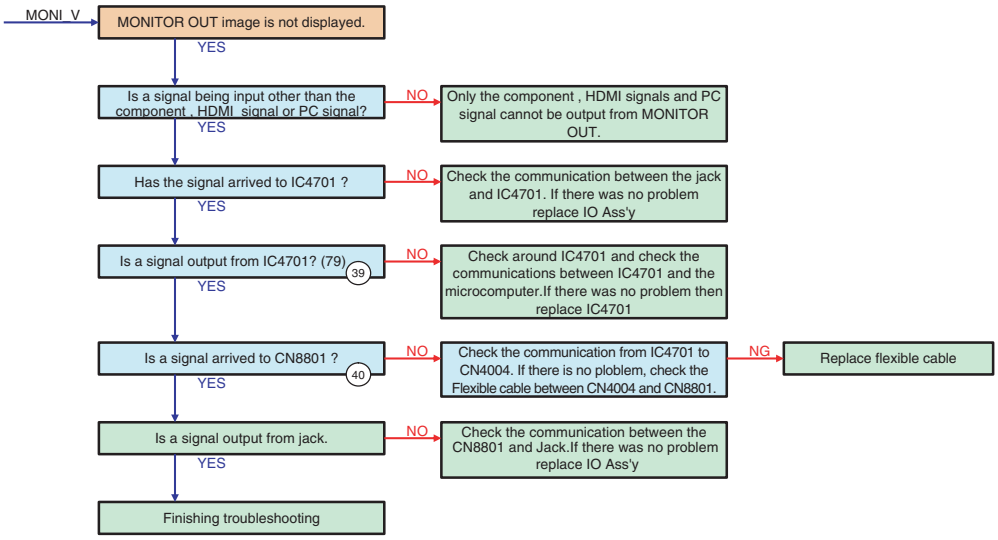
37 **IC5301 (48)** V:500mV/div H:10 µsec/div

38 **IC5301 (54)** V:500mV/div H:10 µsec/div



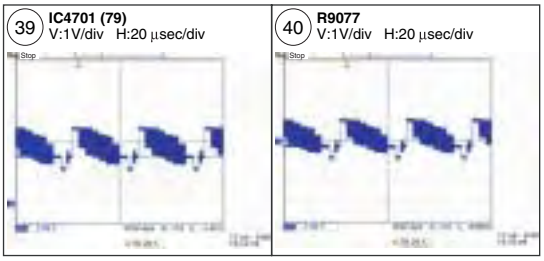
Flowchart of Failure Analysis for The Video-system Assy

No monitor output

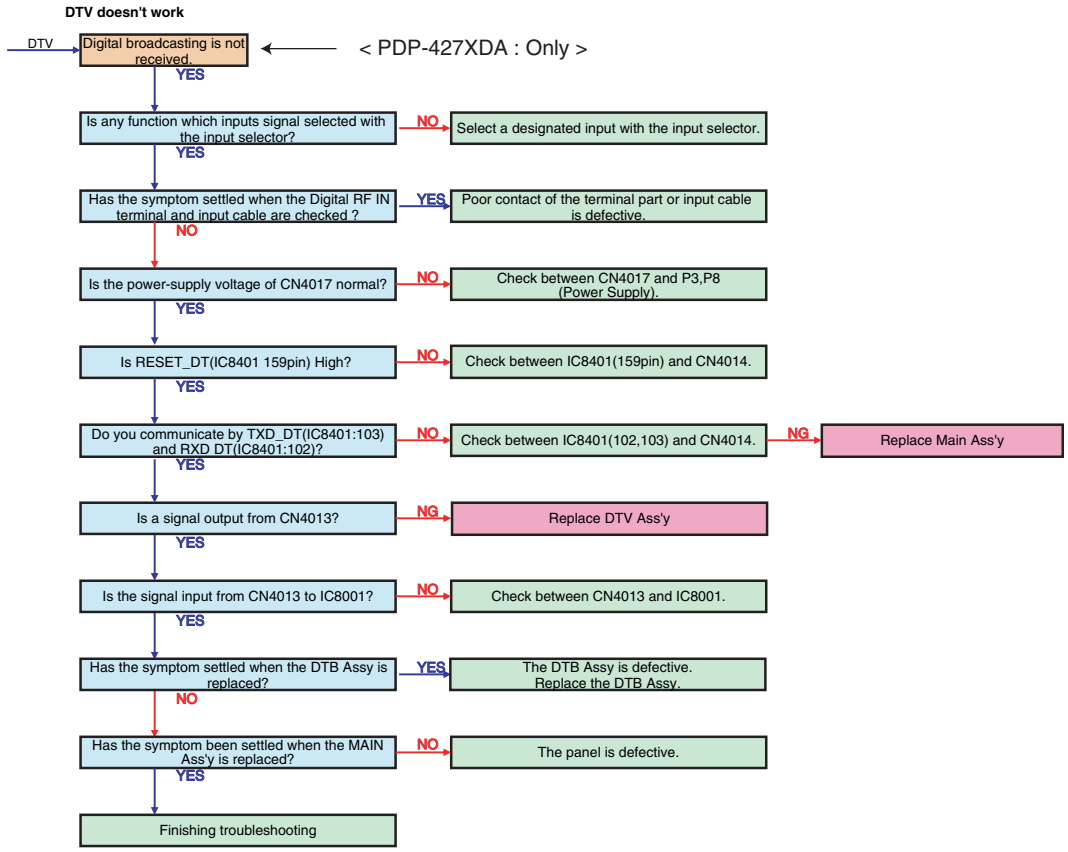

MONI_V
MONITOR OUT image is not displayed.
YES
Is a signal being input other than the component , HDMI signal or PC signal?
NO
Only the component , HDMI signals and PC signal cannot be output from MONITOR OUT.
YES
Has the signal arrived to IC4701 ?
NO
Check the communication between the jack and IC4701. If there was no problem replace IO Ass'y
YES
Is a signal output from IC4701? (79)
39
NO
Check around IC4701 and check the communications between IC4701 and the microcomputer.If there was no problem then replace IC4701
YES
Is a signal arrived to CN8801 ?
40
NO
Check the communication from IC4701 to CN4004. If there is no ploblem, check the Flexible cable between CN4004 and CN8801.
NG
Replace flexible cable
YES
Is a signal output from jack.
NO
Check the communication between the CN8801 and Jack.If there was no problem replace IO Ass'y
YES
Finishing troubleshooting

*Input image is a color bar in all cases

• Waveforms

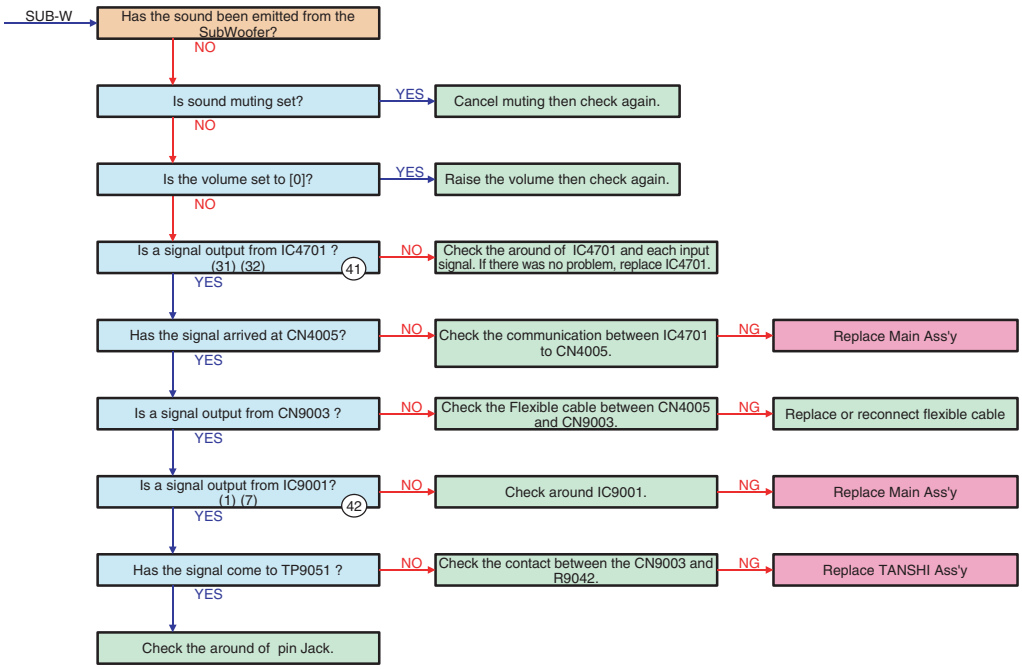


Flowchart of Failure Analysis for The Video-system Assy


DTV doesn't work
DTV
Digital broadcasting is not received.
< PDP-427XDA : Only >
YES
Is any function which inputs signal selected with the input selector?
NO
Select a designated input with the input selector.
YES
Has the symptom settled when the Digital RF IN terminal and input cable are checked ?
YES
Poor contact of the terminal part or input cable is defective.
NO
Is the power-supply voltage of CN4017 normal?
NO
Check between CN4017 and P3,P8 (Power Supply).
YES
Is RESET_DT(IC8401 159pin) High?
NO
Check between IC8401(159pin) and CN4014.
YES
Do you communicate by TXD_DT(IC8401:103) and RXD DT(IC8401:102)?
NO
Check between IC8401(102,103) and CN4014.
NG
Replace Main Ass'y
YES
Is a signal output from CN4013?
NG
Replace DTV Ass'y
YES
Is the signal input from CN4013 to IC8001?
NO
Check between CN4013 and IC8001.
YES
Has the symptom settled when the DTB Assy is replaced?
YES
The DTB Assy is defective. Replace the DTB Assy.
NO
Has the symptom been settled when the MAIN Ass'y is replaced?
NO
The panel is defective.
YES
Finishing troubleshooting

Flowchart of Failure Analysis for The Video-system Assy

No audio output from subwoofer

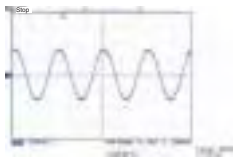


*100Hz input. Sound volume is fixed to 25.

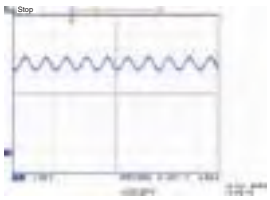
• Waveforms

41

IC4701 (31)(32)AC-SUBWOO
V:200mV/div H:4msec/div

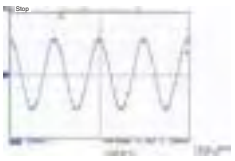


IC4701 (31)(32)DC-SUBWOO

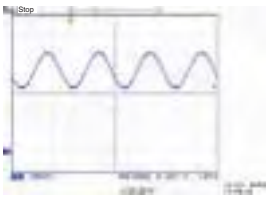


42

IC4704 (1)(7)AC-SUBWOO
V:200mV/div H:4msec/div

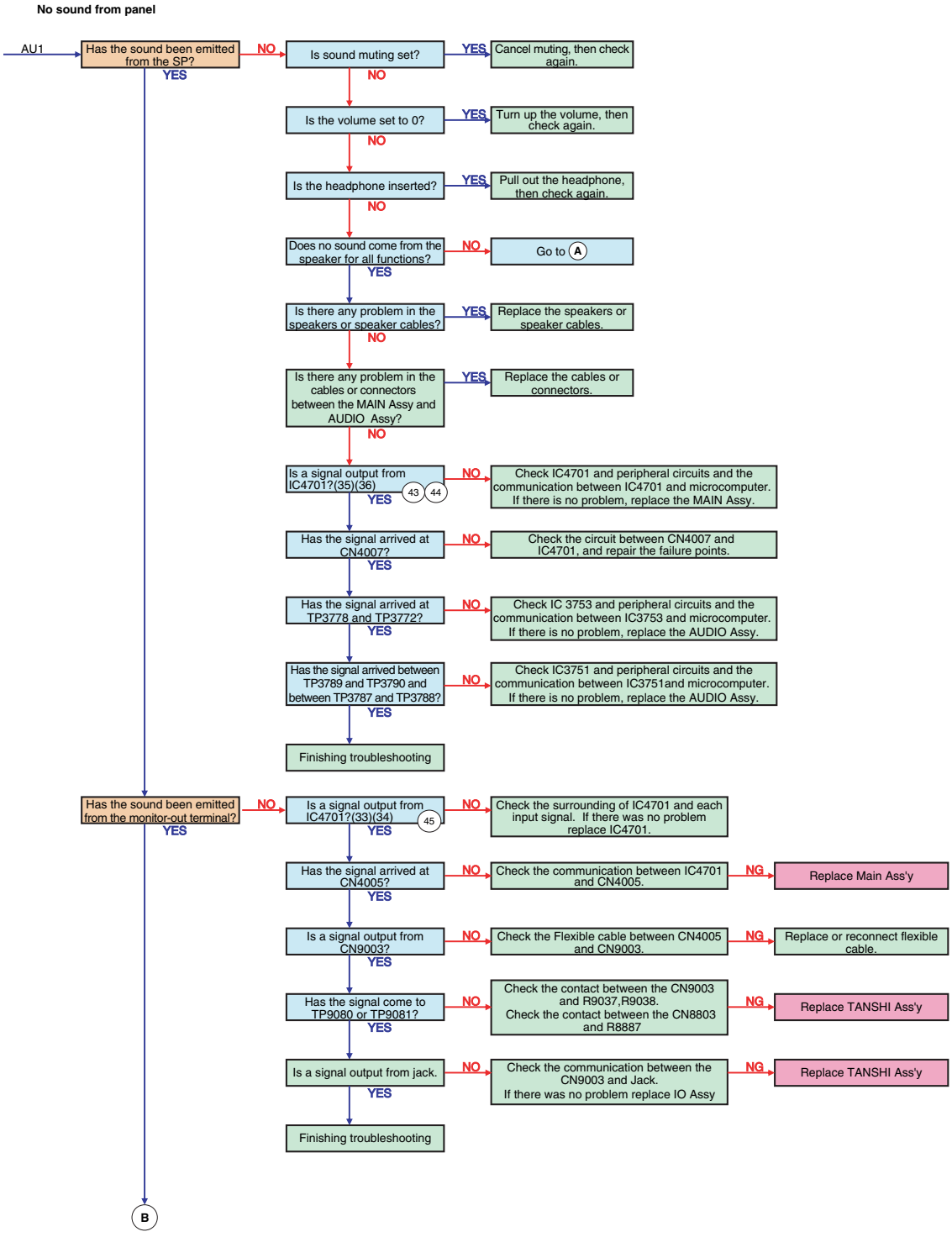


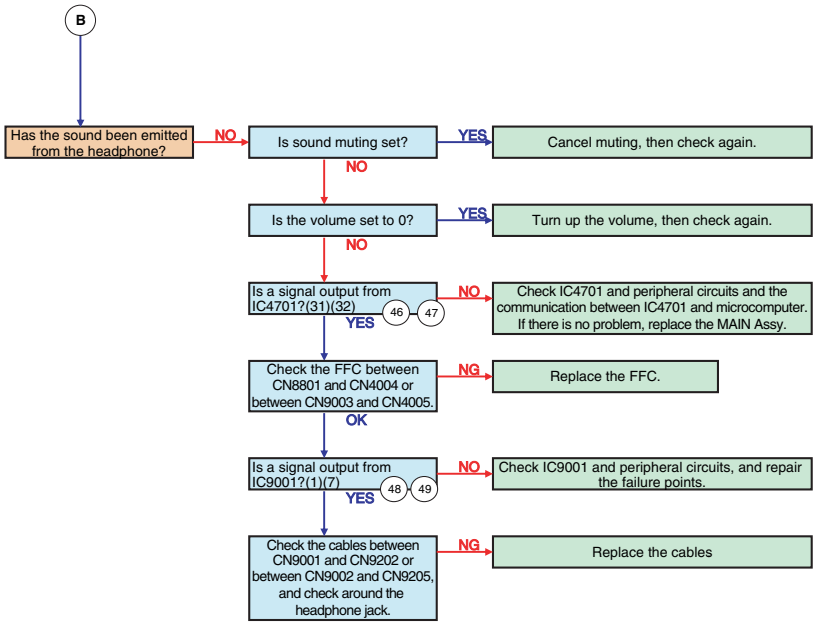
IC4704 (1)(7)DC-SUBWOO



4.1.2 FLOWCHART OF FAILURE ANALYSIS FOR THE AUDIO SYSTEM

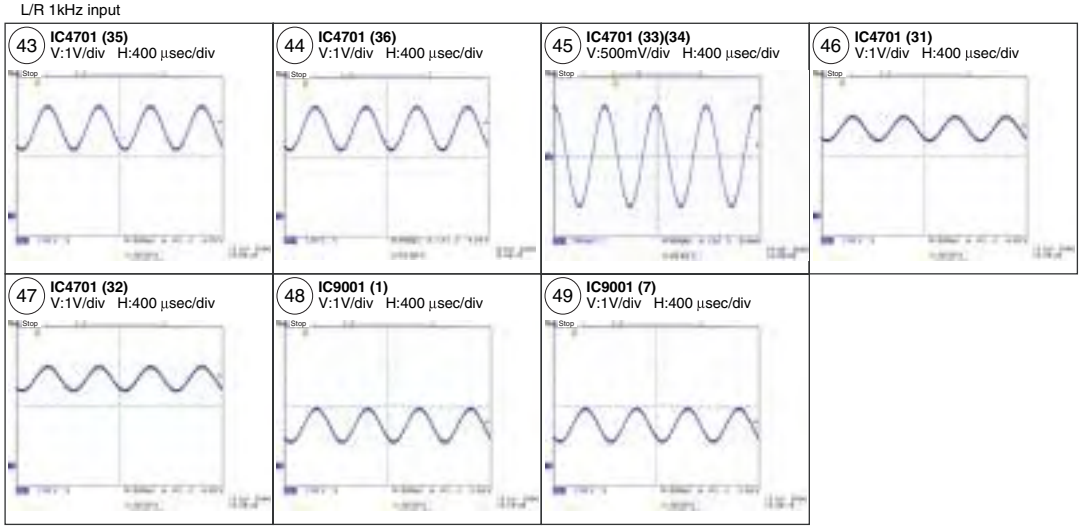
Flowchart of Failure Analysis for The Audio-system Assy


No sound from panel
AU1
Has the sound been emitted from the SP?
NO
Is sound muting set?
YES
Cancel muting, then check again.
NO
Is the volume set to 0?
YES
Turn up the volume, then check again.
NO
Is the headphone inserted?
YES
Pull out the headphone, then check again.
NO
Does no sound come from the speaker for all functions?
NO
Go to A
YES
Is there any problem in the speakers or speaker cables?
YES
Replace the speakers or speaker cables.
NO
Is there any problem in the cables or connectors between the MAIN Assy and AUDIO Assy?
YES
Replace the cables or connectors.
NO
Is a signal output from IC4701?(35)(36)
43
44
NO
Check IC4701 and peripheral circuits and the communication between IC4701 and microcomputer. If there is no problem, replace the MAIN Assy.
YES
Has the signal arrived at CN4007?
NO
Check the circuit between CN4007 and IC4701, and repair the failure points.
YES
Has the signal arrived at TP3778 and TP3772?
NO
Check IC 3753 and peripheral circuits and the communication between IC3753 and microcomputer. If there is no problem, replace the AUDIO Assy.
YES
Has the signal arrived between TP3789 and TP3790 and between TP3787 and TP3788?
NO
Check IC3751 and peripheral circuits and the communication between IC3751and microcomputer. If there is no problem, replace the AUDIO Assy.
YES
Finishing troubleshooting
Has the sound been emitted from the monitor-out terminal?
NO
Is a signal output from IC4701?(33)(34)
45
NO
Check the surrounding of IC4701 and each input signal. If there was no problem replace IC4701.
YES
Has the signal arrived at CN4005?
NO
Check the communication between IC4701 and CN4005.
NG
Replace Main Ass'y
YES
Is a signal output from CN9003?
NO
Check the Flexible cable between CN4005 and CN9003.
NG
Replace or reconnect flexible cable.
YES
Has the signal come to TP9080 or TP9081?
NO
Check the contact between the CN9003 and R9037,R9038. Check the contact between the CN8803 and R8887
NG
Replace TANSHI Ass'y
YES
Is a signal output from jack.
NO
Check the communication between the CN9003 and Jack. If there was no problem replace IO Assy
NG
Replace TANSHI Ass'y
YES
Finishing troubleshooting
B

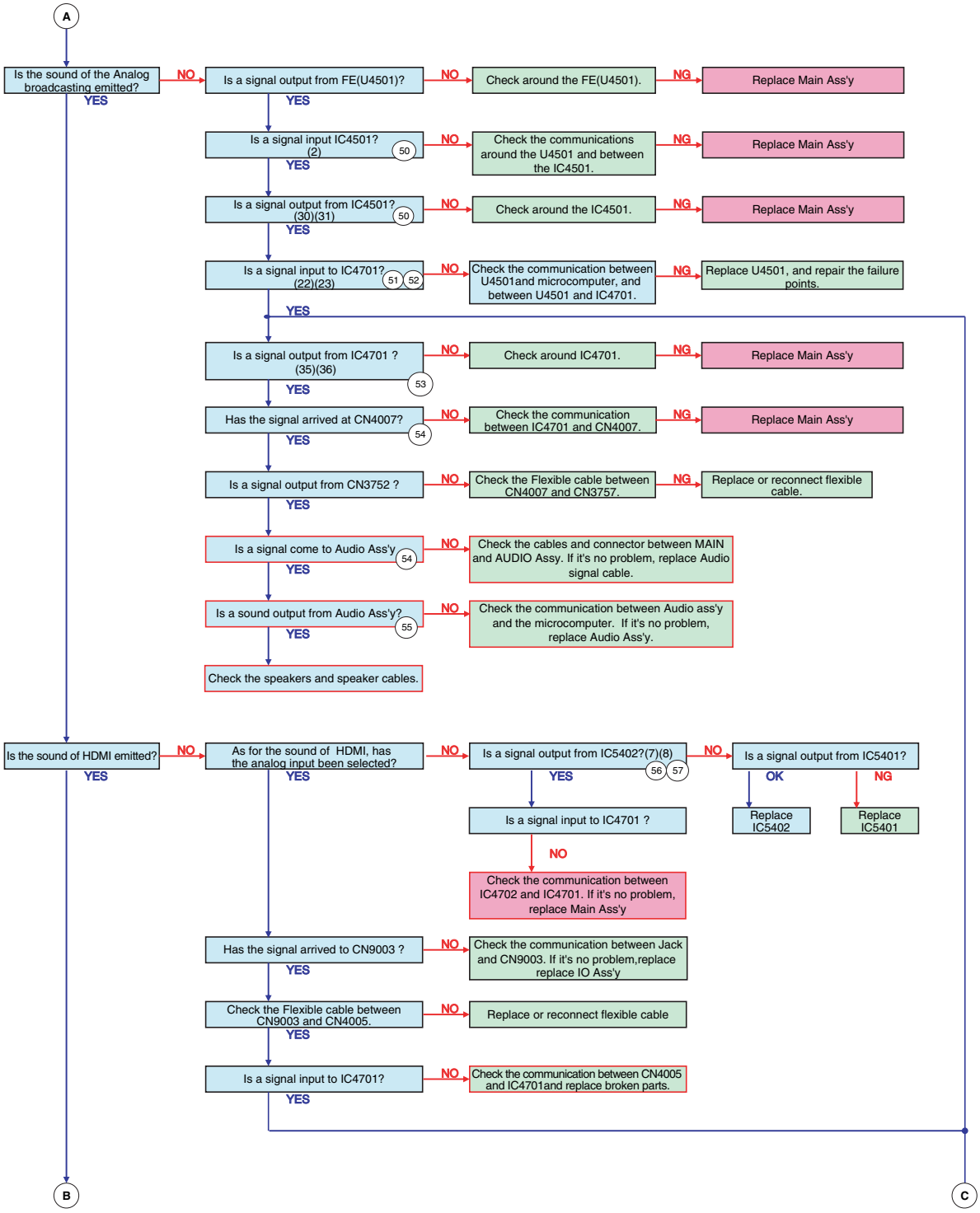

B
Has the sound been emitted from the headphone?
NO
Is sound muting set?
YES
Cancel muting, then check again.
NO
Is the volume set to 0?
YES
Turn up the volume, then check again.
NO
Is a signal output from IC4701?(31)(32)
46
47
NO
Check IC4701 and peripheral circuits and the communication between IC4701 and microcomputer. If there is no problem, replace the MAIN Assy.
YES
Check the FFC between CN8801 and CN4004 or between CN9003 and CN4005.
NG
Replace the FFC.
OK
Is a signal output from IC9001?(1)(7)
48
49
NO
Check IC9001 and peripheral circuits, and repair the failure points.
YES
Check the cables between CN9001 and CN9202 or between CN9002 and CN9205, and check around the headphone jack.
NG
Replace the cables

• Waveforms

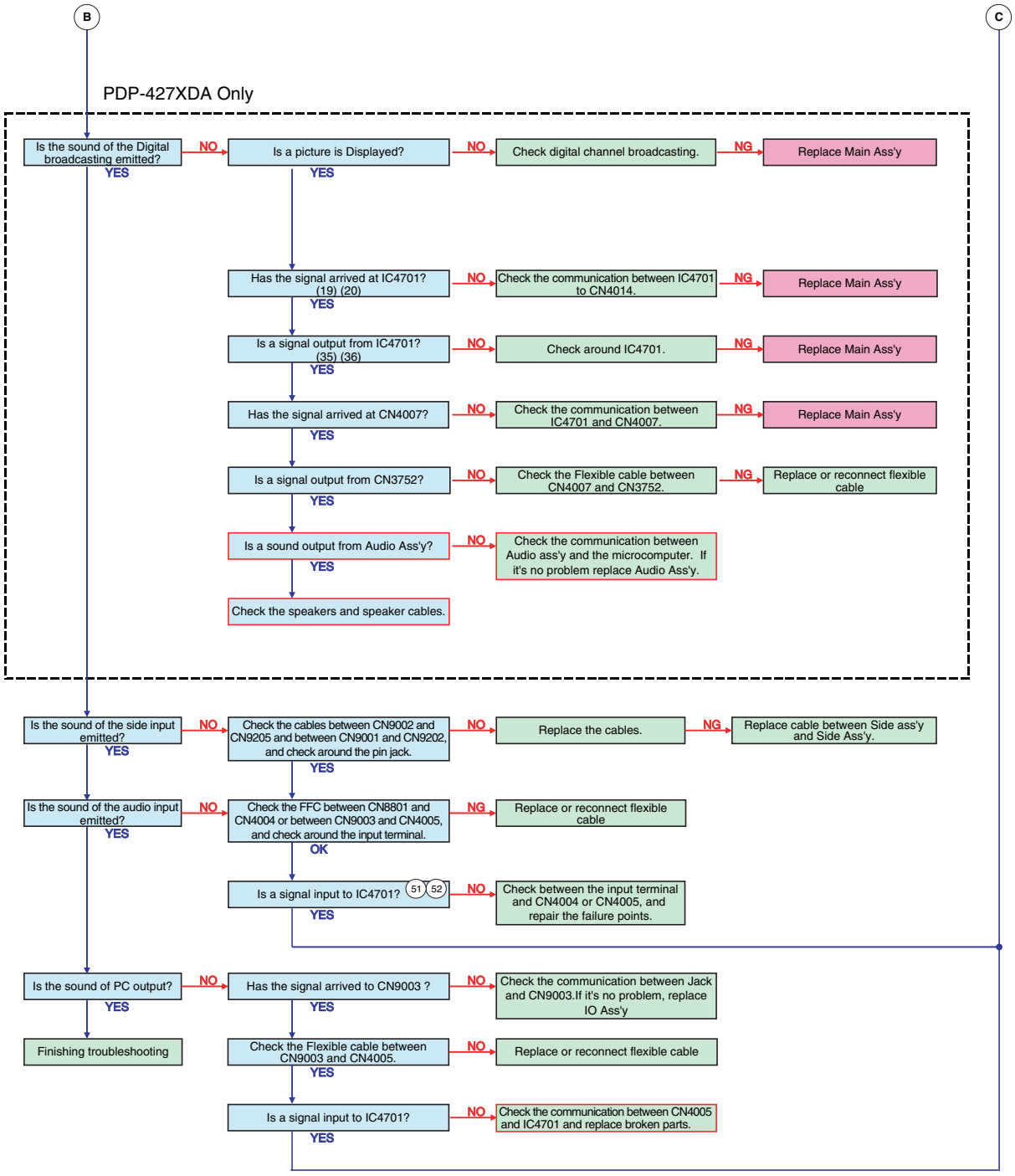
L/R 1kHz input


43 IC4701 (35) V:1V/div H:400 µsec/div
44 IC4701 (36) V:1V/div H:400 µsec/div
45 IC4701 (33)(34) V:500mV/div H:400 µsec/div
46 IC4701 (31) V:1V/div H:400 µsec/div
47 IC4701 (32) V:1V/div H:400 µsec/div
48 IC9001 (1) V:1V/div H:400 µsec/div
49 IC9001 (7) V:1V/div H:400 µsec/div

Flowchart of Failure Analysis for The Audio-system Assy



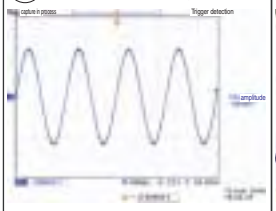
Flowchart of Failure Analysis for The Audio-system Assy


B
C
PDP-427XDA Only
Is the sound of the Digital broadcasting emitted?
NO
YES
Is a picture is Displayed?
NO
YES
Check digital channel broadcasting.
NG
Replace Main Ass'y
Has the signal arrived at IC4701? (19) (20)
NO
YES
Check the communication between IC4701 to CN4014.
NG
Replace Main Ass'y
Is a signal output from IC4701? (35) (36)
NO
YES
Check around IC4701.
NG
Replace Main Ass'y
Has the signal arrived at CN4007?
NO
YES
Check the communication between IC4701 and CN4007.
NG
Replace Main Ass'y
Is a signal output from CN3752?
NO
YES
Check the Flexible cable between CN4007 and CN3752.
NG
Replace or reconnect flexible cable
Is a sound output from Audio Ass'y?
NO
YES
Check the communication between Audio ass'y and the microcomputer. If it's no problem replace Audio Ass'y.
Check the speakers and speaker cables.
Is the sound of the side input emitted?
NO
YES
Check the cables between CN9002 and CN9205 and between CN9001 and CN9202, and check around the pin jack.
NO
YES
Replace the cables.
NG
Replace cable between Side ass'y and Side Ass'y.
Is the sound of the audio input emitted?
NO
YES
Check the FFC between CN8801 and CN4004 or between CN9003 and CN4005, and check around the input terminal.
NG
OK
Replace or reconnect flexible cable
Is a signal input to IC4701? 51 52
NO
YES
Check between the input terminal and CN4004 or CN4005, and repair the failure points.
Is the sound of PC output?
NO
YES
Has the signal arrived to CN9003 ?
NO
YES
Check the communication between Jack and CN9003.If it's no problem, replace IO Ass'y
Finishing troubleshooting
Check the Flexible cable between CN9003 and CN4005.
NO
YES
Replace or reconnect flexible cable
Is a signal input to IC4701?
NO
YES
Check the communication between CN4005 and IC4701 and replace broken parts.

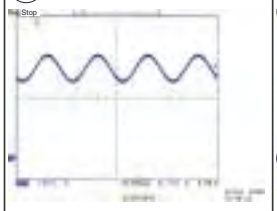
• Waveforms

L/R 1kHz input

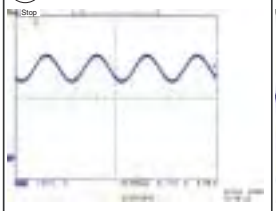
50 **IC4501 (2)(30)(31)**
V:200mV/div H:400 µsec/div



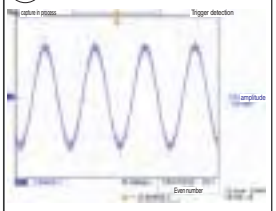
51 **IC4701 (22)**
V:1V/div H:400 µsec/div



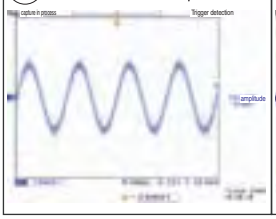
52 **IC4701 (23)**
V:1V/div H:400 µsec/div



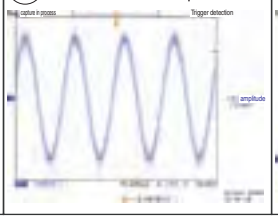
53 **IC4701 (35)(36)**
V:100mV/div H:400 µsec/div



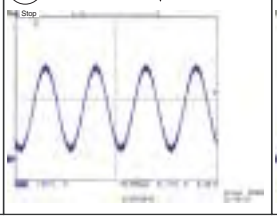
54 **CN4007(3)(5)**
V:100mV/div H:400 µsec/div



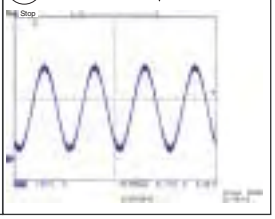
55 **IC4701(35)(36)**
V:100mV/div H:400 µsec/div



56 **IC5402 (7)**
V:1V/div H:400 µsec/div



57 **IC5402 (8)**
V:1V/div H:400 µsec/div



5. ADJUSTMENT

1. At shipment, the unit is adjusted to its best conditions. Normally, it is not necessary to readjust even if an assembly is replaced. If the adjustment is shifted or if it becomes necessary to readjust because of part replacement, etc., perform the adjustment as described below.
2. Any value changed in Service/Factory mode will be stored in memory as soon as it is changed. Before readjustment, take note of the original values for reference in case you need to restore the original settings.
3. Use a stable AC power supply.

5.1 ADJUSTMENT REQUIRED WHEN THE SET IS REPAIRED OR REPLACED

■ When any of the following assemblies is replaced

POWER SUPPLY Unit	Refer to "7.4 HOW TO CLEAR HISTORY DATA". on ARP3391 (PDP-427XD)
DIGITAL Assy	Writing of backup data is required. Refer to the "7.3 BACKUP WHEN THE PANEL UNIT IS ADJUSTED. " on ARP3391 (PDP-427XD)
X MAIN DRIVE Assy	No adjustment required
X SUB DRIVE Assy	No adjustment required
Y MAIN DRIVE Assy	No adjustment required
Y SUB DRIVE Assy	No adjustment required
Service Panel Assy	Refer to "5.3 ADJUSTMENTS WHEN THE SERVICE PANEL ASSY IS REPLACED."
MAIN Assy	Switching to SR+ from RS-232C
SENSOR Assy	Writing of backup data is required. Refer to the "7.3 BACKUP WHEN THE PANEL UNIT IS ADJUSTED. " on ARP3391 (PDP-427XD)
TANSHI Assy	No adjustment required

5.2 ADJUSTMENT REQUIRED WHEN PART IS REPLACED

Notes on replacing parts
For the parts described in the list below, replacement is required for the whole Assy, not only the defective part.
If any part listed below is identified as defective and needs replacement, replace the whole Assy, and make necessary adjustments after replacement.

Reason: The whole Assy must be replaced, because adjustments and data rewriting for the Assy at the level of production line are required.

PCB Assy No.	Function Name	Parts that Require Whole-Assy Replacement		
		Ref No.	Function Name	Part No.
AWW1193	42 DIGITAL Assy	IC3151	Module microcomputer	AGC1011
		IC3401	Sequence IC	PEG239A
		IC3301	Flash memory	AGC1024
		IC3156	EEPROM	BR24L04FJ-W
AWW1140	SENSOR Assy	IC3652	EEPROM	BR24L02FJ-W
AWV2322	MAIN Assy	IC4603	Flash ROM	AGC1020
		IC4701	AV switch	R2S11002AFT
		IC4901	RGB switch	R2S11001FT
		IC5101	MAIN VDEC	UPD64015GM-UEU
		IC5103	SUB VDEC	TVP5150AM1PBS
		IC5301	A/D Converter	AD9985KSTZ-110
		IC5403	EEPROM	BR24L02FJ-W
		IC5404	EEPROM	BR24L02FJ-W
		IC8202	Flash ROM	AGC1019
		IC8301	Flash UCOM	AGC1016
		IC8402	Flash ROM	AGC1018

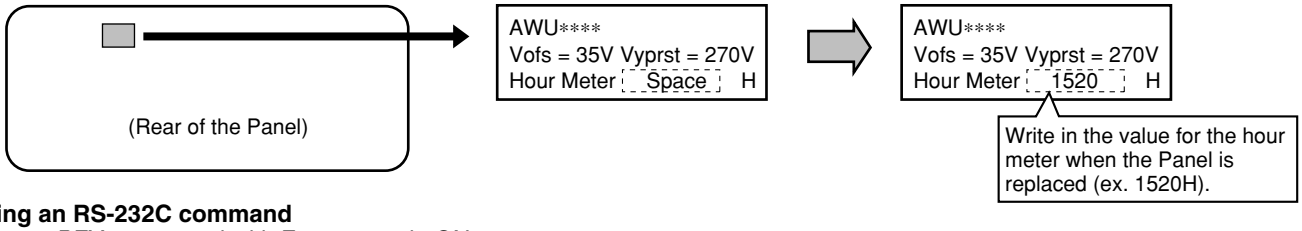
POWER SUPPLY Unit	The assembly must be replaced as a unit, and no part replacement is allowed.
MAIN Assy	No adjustment is required after replacement of parts other than those mentioned above.
DIGITAL Assy	No adjustment is required after replacement of parts other than those mentioned above.
X MAIN DRIVE Assy	No adjustment is required after replacement of parts other than those shown in the following page.
X SUB DRIVE Assy	No adjustment required
Y MAIN DRIVE Assy	No adjustment is required after replacement of parts other than those shown in the following page.
Y SUB DRIVE Assy	No adjustment required
ADDRESS Assy	No adjustment required
SENSOR Assy	No adjustment is required after replacement of parts other than those mentioned above.
TANSHI Assy	No adjustment required

5.3 ADJUSTMENT WHEN THE SERVICE PANEL ASSY IS REPLACED

When the Panel Assy is replaced with one for service, the following adjustments are required:

■ Adjustments of Vofs voltage and Vyprst voltage

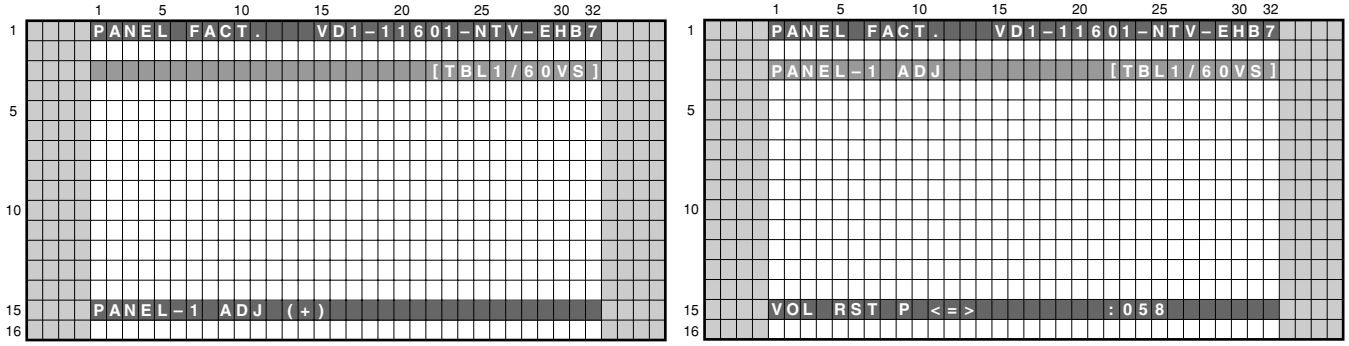
Enter the reference adjustment values for the Vofs voltage and Vyprst voltage that are written on the label attached to the panel for service.
Note: Enter the values, using an RS-232C command or the Factory Menu.


(Rear of the Panel)
AWU****
Vofs = 35V Vyprst = 270V
Hour Meter Space H
AWU****
Vofs = 35V Vyprst = 270V
Hour Meter 1520 H
Write in the value for the hour meter when the Panel is replaced (ex. 1520H).

Using an RS-232C command

Enter a "PFY" command with Factory mode ON.
Convert the adjustment voltage values written on the label attached at the rear of the Panel to an input command, referring to the conversion chart. (See the next page.)
• Reference adjustment of the Vofs voltage: Ex. "Vofs = 35" → (Check the conversion chart.) Enter "VOF112."
• Reference adjustment of the Vyprst voltage: Ex. "Vyprst = 270 V" → (Check the conversion chart.) Enter "VRP078."

Using the Factory Menu



Select the main item "PANEL FACT." by pressing the MUTE key then enter Panel Factory mode by pressing the SET key.
Using the ▲/▼ keys, select "PANEL-1 ADJ" then press the SET key to enter the next lower nested layer.
Select "VOL-OFFSET" or "VOL RST P" then enter a command value converted from the voltage value, using the ◄/► keys.

■ Clearing data on various histories of the Panel, such as those on the hour meter

- It is necessary to clear the data on the hour meter, etc. to match them to the actual driving hours of the Panel.
- It is also necessary to clear the data on SD and PD, because the accumulated power-on time when a shutdown or power-down occurred is recorded.

Note: Clear the values, using an RS-232C command or the Factory Menu.
There are two types of hour meters. Do not take the MTB hour meter for the hour meter.

Using an RS-232C command

To acquire the accumulated power-on time of the product itself, use the "QS2" of RS-232C command.
1. To clear the data on the hour meter (for the Panel) : CHM
2. To clear the data on the pulse meter : CPM
3. To clear the data on the SD history : CSD
4. To clear the data on the PD history : CPD

Using the Factory Menu

See "7.4 HOW TO CLEAR HISTORY DATA."
(Refor to Service mamual "ARP3391")

■ Conversion charts for electronic VRs (Vprst/Vofs)

Vprst [V]	Setting value [STEP]
222	000
223	002
224	004
225	006
226	009
227	011
228	013
229	016
230	018
231	020
232	022
233	025
234	027
235	029
236	032
237	034
238	036
239	039
240	041
241	043
242	045
243	048
244	050
245	052
246	055
247	057
248	059
249	062
250	064
251	066
252	069
253	071
254	073
255	075
256	078
257	080
258	082
259	085
260	087
261	089
262	092
263	094
264	096
265	098

Vprst [V]	Setting value [STEP]
266	101
267	103
268	105
269	108
270	110
271	112
272	115
273	117
274	119
275	121
276	124
277	126
278	128
279	131
280	133
281	135
282	138
283	140
284	142
285	144
286	147
287	149
288	151
289	154
290	156
291	158
292	161
293	163
294	165
295	168
296	170
297	172
298	174
299	177
300	179
301	181
302	184
303	186
304	188
305	191
306	193
307	195
308	197
309	200

Vprst [V]	Setting value [STEP]
310	202
311	204
312	207
313	209
314	211
315	214
316	216
317	218
318	220
319	223
320	225
321	227
322	230
323	232
324	234
325	237
326	239
327	241
328	243
329	246
330	248
331	250
332	253
333	255

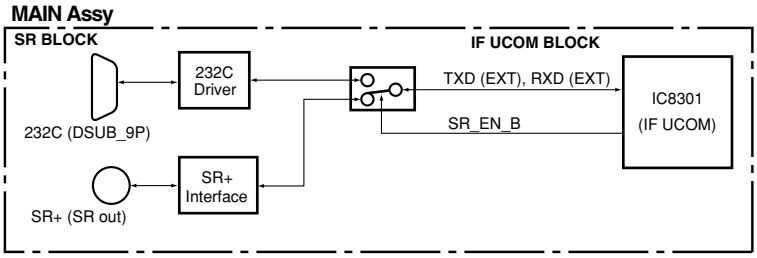
Vofs [V]	Setting value [STEP]
14	000
15	005
16	010
17	015
18	021
19	027
20	032
21	037
22	043
23	048
24	053
25	059
26	064
27	069
28	075
29	080
30	085
31	091
32	096
33	101
34	107
35	112
36	118
37	123
38	128
39	134
40	139
41	144
42	150
43	155
44	160
45	166
46	171
47	176
48	182
49	187
50	192
51	198
52	203
53	209
54	214
55	219
56	225
57	230

Vofs [V]	Setting value [STEP]
58	235
59	241
60	246
61	251
62	255

6. RS-232C
6.1 OUTLINE OF RS-232C COMMAND
6.1.1 USING RS-232C COMMANDS

For the PDP-427XG and PDP-427XDA Plasma Displays, the circuitry is structured as shown in the diagram below to support the SR+ system. Controlling with either the SR+ system or RS-232C commands can be selected.
As the SR+ system is selected at shipment, to control with RS-232C commands in servicing it is necessary to switch the paths. After servicing, be sure to return the setting to the SR+ system.

■ Rough diagram of switching between SR+ and RS-232C



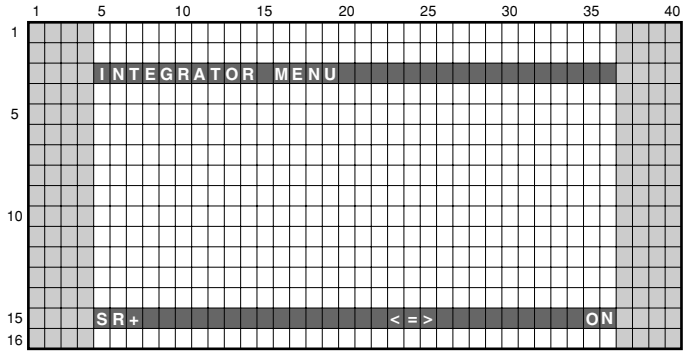
■ How to switch SR+/RS-232C ?

There are "How to switch SR+/RS-232C by remote control in the Standby Mode" and "How to switch SR+/RS-232C by remote control in the INTEGRATOR MENU" as a Method

① To select SR+/RS-232C by remote control in Standby Mode.
- During Standby mode, hold the keys other than the [POWER] key on the remote control, the following operation is done within 10 seconds.

To select from SR+ to RS-232C/To select from RS-232C to SR+.
- During standby mode, hold the [VOLUME+ (or -)] key on the remote control unit pressed for 3 to 10 seconds. →Then within 3 seconds after the key is released, hold the [2-screen] key released, use the [SET (ENTER)] key on the remote control unit to set to RS-232C (the baud rate last selected is chosen) or the [HOME MENU] key to set to SR+.
- During IF Standby mode (once 10 seconds or more has passed after the LED goes dark during communication), the first keypress may not be accepted. In such a case, for a key operation, first press any key other than the [POWER] key and [CH] keys, then the desired key.
- At the switch SR+/RS-232C, the LED will be blinked on the fixed time.

② To select SR+/RS-232C in the INTEGRATOR MENU.
- How to enter INTEGRATOR MENU.
  During standby mode, press the [Home Menu] key, and then press the [POWER] key within 3 seconds. During factory mode, hold the [INTEGRATOR] key.
- In INTEGRATOR MENU, there is a OSD where SR+ (or RS-232C) is turned on/off, and it switches on the screen.



6.2 OUTLINE OF EACH COMMAND

6.2.1 QS6

Induce it peculiar, individual information is acquired.

Command Format	Effective Operation Modes	Function	Remarks
[QS6]	Every time	Output of status	

• AU Model

Order	Part	Data Arrangement	Data Length	Remarks
00	–	Received Command name	3 byte	QS6
01		DTB version	4 byte	
02		Reserved	8 byte	
03		TELE-TEXT version	60 byte	
04		USER PASSWORD	4 byte	
05	–	Check Sum	2 byte	

• GE Model

Order	Part	Data Arrangement	Data Length	Remarks
00	–	Received Command name	3 byte	QS6
01		Reserved	12 byte	
02		TELE-TEXT version	60 byte	
03		USER PASSWORD	4 byte	
04		Check Sum	2 byte	

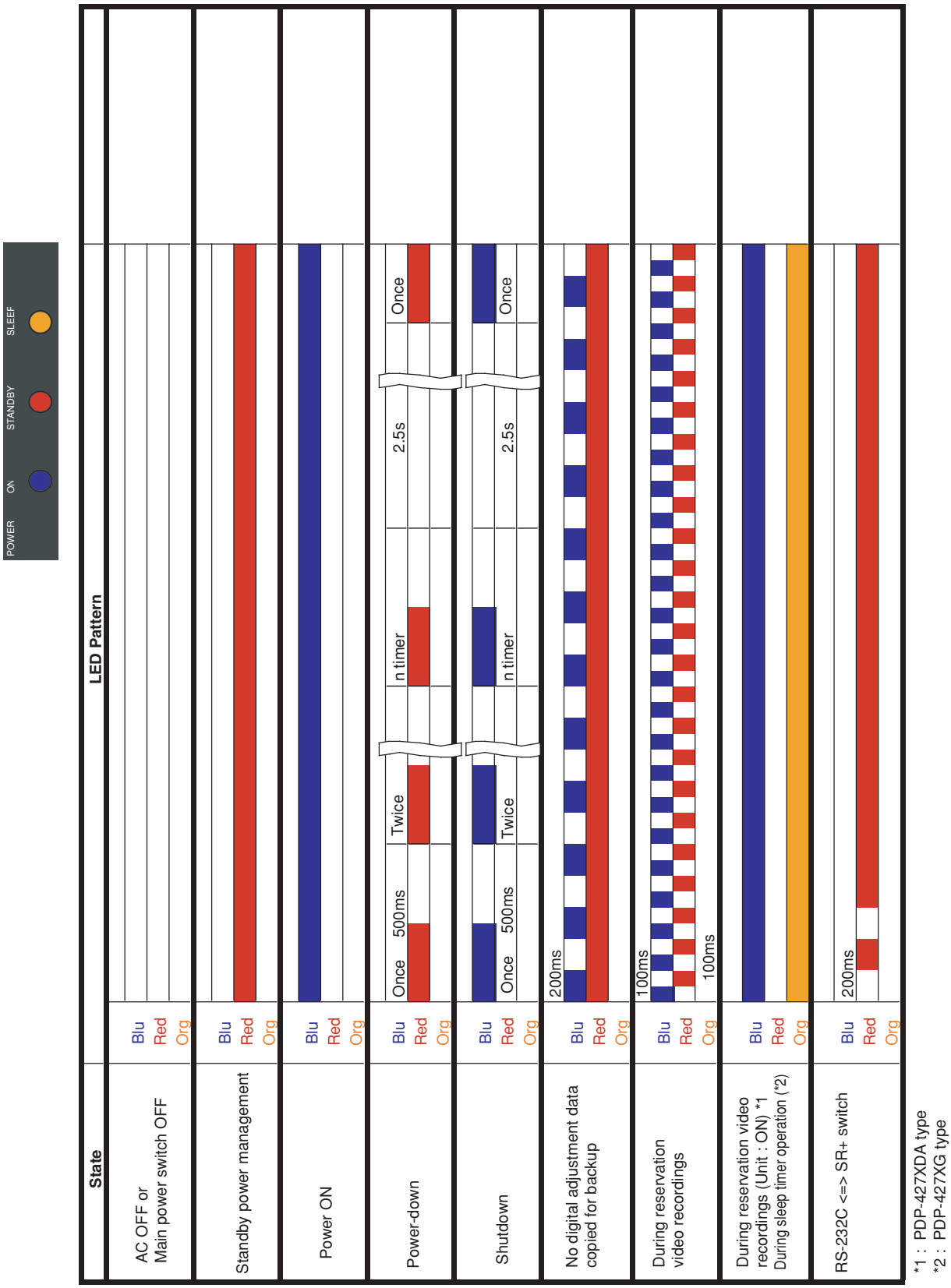
• CH Model

Order	Part	Data Arrangement	Data Length	Remarks
00	–	Received Command name	3 byte	QS6
01		Reserved	72 byte	
02		USER PASSWORD	4 byte	
03		Check Sum	2 byte	

7. GENERAL INFORMATION

7.1 LED INFORMATION

• LED Pattern



*1 : PDP-427XDA type
*2 : PDP-427XG type

7.2 GENERAL INFORMATION (PDP-427XDA Only)

Display Method of Signal Level, Quality, and BER Information Screen

MANUAL SCAN screen has these information.

Operation : Manual Scan
HOMEMENU => Setup => DTV Setup => Installation => Input Password =>Manual Scan

Sinal Level
Quality
"Signal Level" and "Quality" are displayed on Manual Scan screen.
These level indicater are laugh standard.
Please use them as reference

BER
While displaying Manual Scan screen, please press the following keys within 5 seconds.
Operation : BER
1. Green Key
2. I-II Key
3. Enter Key

This BER function is effective until turning off power.

Fig : Manual Scan screen

7.3 SPECIFICATION

Specifications

Item			42” Plasma Display, model: PDP-427XDA
Number of pixels			1024 x 768 pixels
Audio amplifier			13 W + 13 W (1 kHz, 10 %, 8 Ω)
Speakers			Woofer: 4.8 cm x 13 cm cone type Tweeter: 2.5 cm semidome type
Surround System			SRS/FOCUS/TruBass
Power Requirements			240 V AC, 50 Hz, 295 W (0.4 W Standby)
Dimensions			1040 mm (W) x 679 mm (H) x 115 mm (D)
Weight			29.7 kg (65.5 lbs.)
Colour System	Analogue		PAL/SECAM/NTSC/4.43 NTSC/PAL-M/PAL-N
	Digital		PAL
TV Function (Analogue)	Receiving System		PAL: B/G, D/K, I SECAM: B/G, D/K NTSC: M/ N
	Tuner	VHF/UHF	44.25 MHz to 863.25 MHz
		CATV	Hyper-band, S1 ch to S41 ch
	Auto Channel Preset		99 ch, Auto Preset
	Audio multiplex		NICAM/A2/BTSC System
TV Function (Digital)	Receiving System		DVB-T (2K/8K COFDM)
	Tuner	VHF/UHF	VHF Band (104.5 MHz to 226.5 MHz) and UHF Band (526.5 MHz to 816.5 MHz)
	Auto Channel Preset		999 ch, Auto Preset, Auto Label
	STEREO		MPEG layer I/II, Dolby Digital
Terminals	Rear	INPUT 1	COMPONENT VIDEO in, S-VIDEO in, AV in
		INPUT2	COMPONENT VIDEO in, S-VIDEO in, AV in
		INPUT3	S-VIDEO in, AV in, HDMI in
		INPUT4	HDMI in
		PC INPUT	Analogue RGB in, AUDIO (STEREO) in
		CONTROL OUT	1
		MONITOR OUT	AV out
		SUBWOOFER	Variable
		DIGITAL OUT	Digital audio output (Optical)
		Antenna	75 Ω Din Type for VHF/UHF in (Analogue) 75 Ω Din Type for VHF/UHF in (Digital)
	Side	INPUT 5	S-VIDEO, AV in
		PHONESOUTPUT	16 Ω to 32 Ω recommended

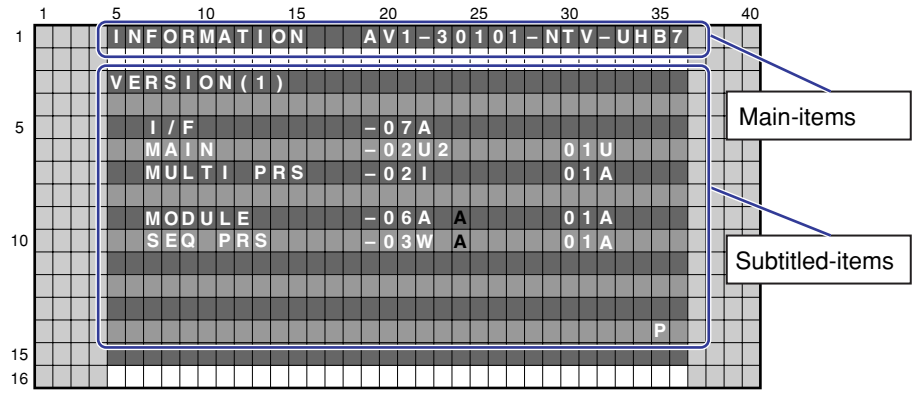
8. SERVICE FACTORY MODE

8.1 FACTORY HIERARCHICAL TABLE

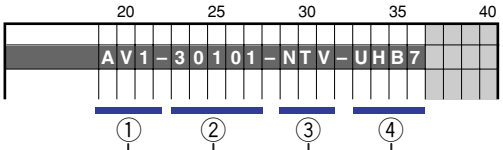
Large Item	Middle Item	Small Item	Variable / Adjustment Range	Remarks
8.2.1 INFORMATION				
	8.2.1.1 VERSION (1)			
	8.2.1.2 VERSION (2)			
	8.2.1.3 MAIN NG	CLEAR <=>	OFF <=> ON	
	8.2.1.4 TEMPERATURE			
	8.2.1.5 HOUR METER			
	8.2.1.6 HDMI SIGNAL INFO 1			
	8.2.1.7 HDMI SIGNAL INFO 2			
	8.2.1.8 VDEC SIGNAL INFO			
8.2.2 PANEL FACTORY (+)				
	8.2.2.1 PANEL INFORMATION			
	8.2.2.2 PANEL WORKS			
	8.2.2.3 POWER DOWN			
	8.2.2.4 SHUT DOWN			
	8.2.2.5 PANEL-1 ADJ (+)	X-SUS B <=>	120 to 136	Equivalent to XSB
		Y-SUS B <=>	120 to 136	Equivalent to YSB
		Y-SUSTAIL T1 <=>	120 to 136	Equivalent to YTG
		Y-SUSTAIL T2 <=>	120 to 136	Equivalent to YTB
		Y-SUSTAIL W <=>	120 to 136	Equivalent to YTW
		XY-RST W1 <=>	120 to 136	Equivalent to RSW
		XY-RST W2 <=>	120 to 136	Equivalent to RYW
		VOL SUS <=>	000 to 255	Equivalent to VSU
		VOL OFFSET <=>	000 to 255	Equivalent to VOF
		VOL RST P <=>	000 to 255	Equivalent to VRP
		SUS FREQ. <=>	MODE 1 to MODE 8	Equivalent to SFR
	8.2.2.6 PANEL-2 ADJ (+)	R-HIGH <=>	000 to 511	Equivalent to PRH
		G-HIGH <=>	000 to 511	Equivalent to PGH
		B-HIGH <=>	000 to 511	Equivalent to PBH
		R-LOW <=>	000 to 999	Equivalent to PRL
		G-LOW <=>	000 to 999	Equivalent to PGL
		B-LOW <=>	000 to 999	Equivalent to PBL
		ABL <=>	000 to 255	Equivalent to ABL
	8.2.2.7 PANEL REVISE (+)	R-LEVEL <=>	LV-0 to LV-7	Equivalent to RRL
		G-LEVEL <=>	LV-0 to LV-7	Equivalent to RGL
		B-LEVEL <=>	LV-0 to LV-7	Equivalent to RBL
	8.2.2.8 ETC. (+)	BACKUP DATA <=>	NO OPRT <=> TRANSFER or ERR	Equivalent to BCP
		DIGITAL EEPROM <=>	NO OPRT <=> DELETE/REPAIR	Equivalent to FAJ/UAJ
		PD INFO. <=>	NO OPRT <=> CLEAR	Equivalent to CPD
		SD INFO. <=>	NO OPRT <=> CLEAR	Equivalent to CSD
		HR-MTR INFO. <=>	NO OPRT <=> CLEAR	Equivalent to CHM
		PM/B1-B5 <=>	NO OPRT <=> CLEAR	Equivalent to CPM
		P COUNT INFO. <=>	NO OPRT <=> CLEAR	Equivalent to CPC
		MAX TEMP. <=>	NO OPRT <=> CLEAR	Equivalent to CMT
	8.2.2.9 RASTER MASK SETUP (+)	MASK OFF	<=> 48V <=> 50V <=> 60V <=> 60P <=> 70P <=> 72V <=> 75V <=>	Equivalent to MKS+S00
		RST MASK 01 <=>		Equivalent to MKS+S51
		• • •		• • •
		RST MASK 24 <=>		Equivalent to MKS+S74
	8.2.2.10 PATTEN MASK SETUP (+)	MASK OFF	<=> 48V <=> 50V <=> 60V <=> 60P <=> 70P <=> 72V <=> 75V <=>	Equivalent to MKS+S00
		PTN MASK 01 <=>		Equivalent to MKS+S01
		• • •		• • •
		PTN MASK 39 <=>		Equivalent to MKS+S39
	8.2.2.11 COMBI MASK SETUP (+)	MASK OFF	<=> 48V <=> 50V <=> 60V <=> 60P <=> 70P <=> 72V <=> 75V <=>	Equivalent to MKC+S00
		CMB MASK 01 <=>		Equivalent to MKC+S01
		• • •		• • •
		CMB MASK 10 <=>		Equivalent to MKC+S10
8.2.3 OPTION				
	8.2.3.1 EDID WRITE MODE <=>			Exclusively used for production line
	8.2.3.2 CH PRESET <=>			
8.2.4 INITIALIZE				
	8.2.4.1 SYNC DET (+)			for the technical analysis
	8.2.4.2 SG MODE <=>		SG OFF <=> • • •	
	8.2.4.3 SG PATTERN <=>		SG PATTERN <=> COLOR BAR 1 • • •	
	8.2.4.4 SIDE MASK LEVEL (+)	R MASK LEVEL <=>	000 to 255	
		G MASK LEVEL <=>	000 to 255	
		B MASK LEVEL <=>	000 to 255	
	8.2.4.5 FINAL SETUP (+)	DATA RESET <=>	OFF <=> ON	
	8.2.4.6 CVT AUTO <=>			Exclusively used for technical analysis (details omitted)
	8.2.4.7 HDMI INTR POSITION (+)	INTR-POS1 (0x75) <=>	000 to 255	
		INTR-POS2 (0x76) <=>	000 to 255	
		INTR-POS3 (0x77) <=>	000 to 255	
		INTR-POS4 (0x78) <=>	000 to 255	

Notes : The marked part is changed.

8.1.1 INDICATIONS IN SERVICE FACTORY MODE



■ Main-item indications



① Input function

Input Functions	OSD
VIDEO 1 to 5	VD 1 to 5
Terrestrial Analog Wave	AIR
Terrestrial Digital Wave	ARD
PC	PC

② SIG mode and Screen size

Note: See SIG-Mode Tables. (See next page.)

③ Color system and Signal type

Color System and Signal Type	OSD1	OSD2
NTSC	NTV	NTS
PAL	PLV	PLS
PAL M	PMV	PMS
PAL N	PNV	PNS
SECAM	SCV	SCS
4.43 NTSC	4NV	4NS
BLACK/WHITE	BWV	BWS
Y/CB/CR	CBR	
Y/PB/PR	PBR	
RGB	RGB	
Digital Video signal	DIG	

Note: OSD1 (Composite input), OSD2 (S-Connector input)

④ Option (Destination, Panel Generation, etc.)

Options	OSD
SX system for Australia (XDA model)	UHB
SX system for General Region (XG model)	GTB
SX system for China (XC model)	CTB

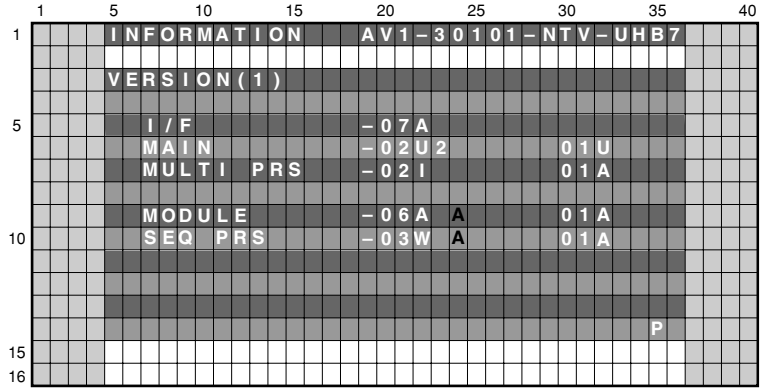
8.2 FACTORY MENU

8.2.1 INFORMATION

● **Operation items**

No.	Function/Display	Context	RS-232C Command
1	VERSION (1)	The software versions for each microcomputer are displayed. (Common part)	QS1
2	VERSION (2)	The Flash memory versions for each device are displayed. (Individual part)	QS6
3	MAIN NG	The Shutdown Message ID/Event Times in Main Microcomputer are displayed.	QNG
4	TEMPERATURE	The Temperature/FAN rotating status in Main Microcomputer are displayed.	QMT
5	HOUR METER	The HOUR METER/P-COUNT information are displayed.	QIP
6	HDMI SIGNAL INFO 1	The Information of HDMI information files are displayed.	–
7	HDMI SIGNAL INFO 2		
8	VDEC SIGNAL INFO	Display the Signal Information on VDEC.	–

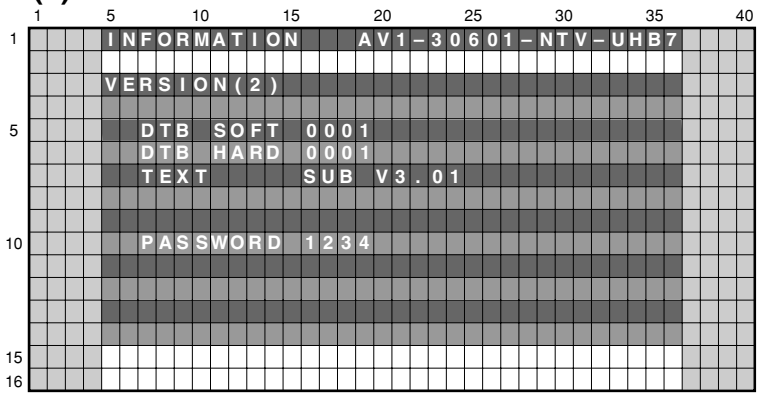
8.2.1.1 VERSION (1)



Microcomputer	Item Name	Display Example (Execution program block)	Display Example (Boot block)
I/F microcomputer	I/F	-07A	–
Main microcomputer	MAIN	-02U2	01U
Multi processor	MULTI PRG	-02I	01A
Module microcomputer	MODULE	-06A_A	01A
Sequence processor	SEQ PRS	-03W_A	01A

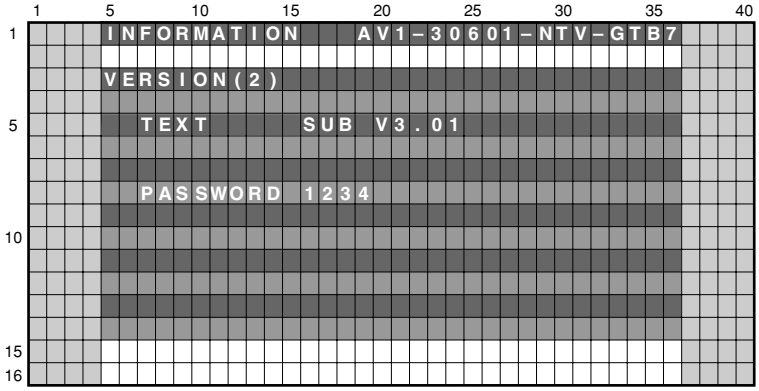
Note: In the 29-32 rows, the Boot version information on each device is displayed.
In the 19-24 rows, the version of the execution program is displayed.
At the position "14x35", The Past/Highly effective panel distinction information is displayed.

8.2.1.2 VERSION (2)



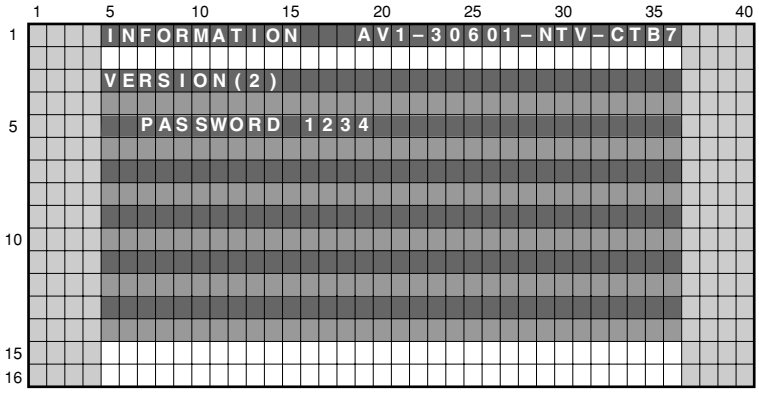
XDA-Model

Flash Device	Item Name	Display Example
DTB Software Version	DTB SOFT	0001
DTB Hardware Version	DTB HARD	0001
TEL TEXT	TEXT	SUB V3.01
User Password	PASSWORD	1234



XG-Model

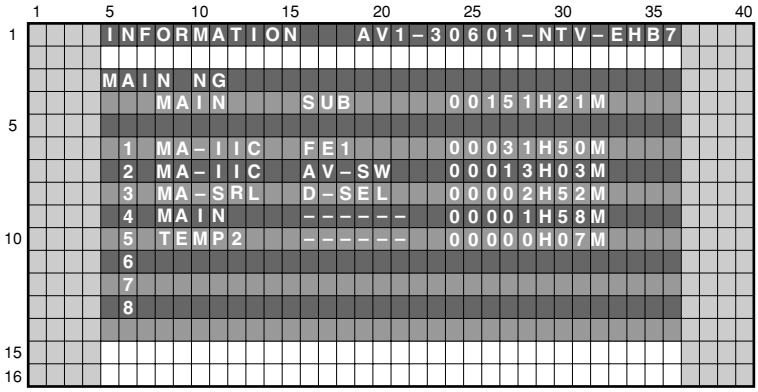
Flash Device	Item Name	Display Example
TeleTEXT	TEXT	SUB V3.01
User Password	PASSWORD	1234



XC-Model

Flash Device	Item Name	Display Example
User Password	PASSWORD	1234

8.2.1.3 MAIN NG



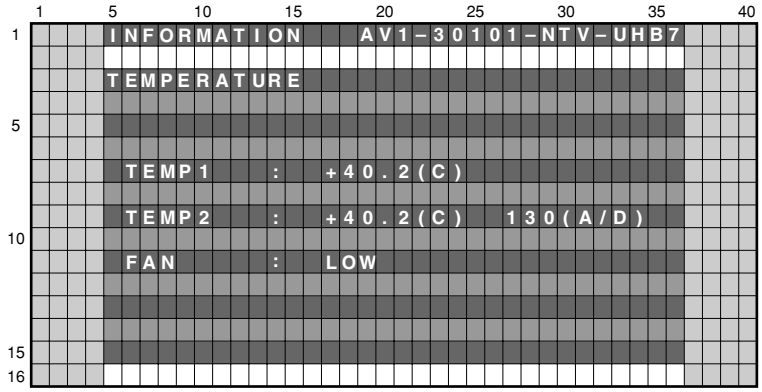
MTB side's Shutdown NG information

OSD: MAIN	OSD: SUB	Cause of Shutdown
AUDIO	----	
MODULE	----	Failure of communication to Module microcomputer.
MA-SRL		3-wire Serial Communication of Main microcomputer.
	IF	Communication failure of IF microcomputer
	MULTI1	Multi Processor communication failure (MULIT1)
	I/P	Multi Processor communication failure (I/P)
	D-SEL	Multi Processor communication failure (D-SEL)
MA-IIC		IIC Communication failure of Main microcomputer
	FE1	Analog Tuner 1 (Front End 1)
	MPX	MPX
	AUDIO	
	AV-SW	AV Switch
	RGB-SW	RGB Switch
	M-VDEC	Main VDEC
	S-VDEC	Sub VDEC
	ADC	AD/PLL
	HDMI	HDMI
	TX-COM	TX communication failure
	TX-BSY	TX Busy
	MA-EEP	64k EEPROM
MAIN		Communication failure of Main microcomputer &Unknown Error
FAN		Fan stopped
TEMP2		Abnormally high temperature at MTB.
DTUNER*		Failure of Digital Tuner
	PS/RST	Failure to DTB Starting
	RETRY	–
MA-PWR	M-DCDC	Abnormally in RST2 of MTB. (power decrease of DC-DC converter)
	RELAY	–

Note) DTUNER : XDA model only

8.2.1.4 TEMPERATURE

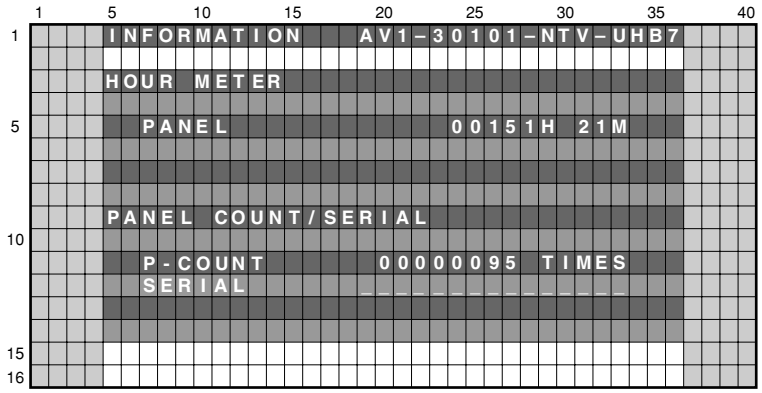
A present temperature and the FAN rotation are displayed.
If either [⬅] key or [➡] key is pressed, the display data is refreshed.



• Display/Meaning

TEMP1 : The temperature of the sensor on the panel side is displayed by the centigrade.
TEMP2 : The temperature conversion display is done with 10bit the A/D input value of Main uCON 76 pin (AN0). It is displayed by both the centigrade (C) and 8bit A/D value.
(Remark:When temperature (C) of the sensor becomes more than a specified temperature, the shutdown start of processing.)
FAN : The value of the Fan rotating state is displayed.
STOP : stopped, LOW: slow speed, HIGH: high speed.

8.2.1.5 HOUR METER



• Display/Meaning

Meaning	Item Name	Display Example	Corresponding RS232C Command
HOUR METER (PANEL)	PANEL	00151H 21M	QIP
POWER ON COUNTER	P-COUNT	00000095 TIMES	QIP
SYSTEM SERIAL	SERIAL		QIP

Note 1: The SYSTEM SERIAL displays only FHD. It corresponds by sticking the seal in G7 model.
Note 2: The PANEL-side's HOUR METER/P-COUNT acquires information from the PANEL-side.

8.2.4 INITIALIZE

Operation item

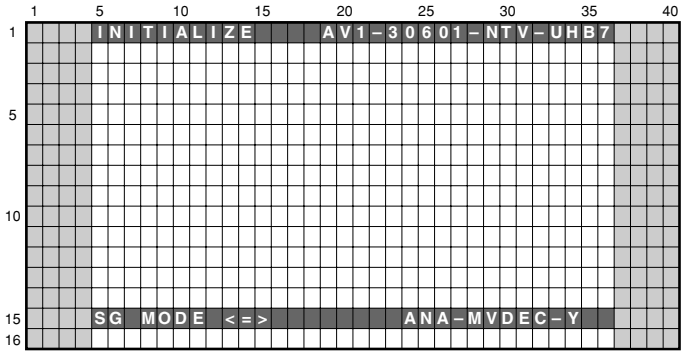
No.	Function	Content	RS232C
1	SYNC DET (+)	Exclusively used for technical analsyis.	–––
2	SG MODE ⇔	Paired SG_MODE with SG_PATTERN. Select SG Route.	–––
3	SG PATTERN ⇔	Paired SG_MODE with SG_PATTERN. Select SG Pattern.	–––
4	SIDE MASK LEVEL (+)	Configure the color of the side mask.	BSL, GSL, RSL
5	FINAL SETUP (+)	Initialize flash memorys on virgin product status	FST
6	CVT AUTO ⇔	Exclusively used for technical analsyis.	–––
7	HDMI INTR POSITION (+)	Exclusively used for technical analsyis.	–––

8.2.4.1 SYNC DET (+)

Exclusively used for technical analsyis (details omitted).

8.2.4.2 SG MODE

SG MODE (SG's route selection) / SG PATTERN (signal pattern selection) are used as pair.
In SG MODE, select the SG route and then select the SG pattern to be sent by the selected route.
In SG MODE, make sure to select the route first.



Operation item

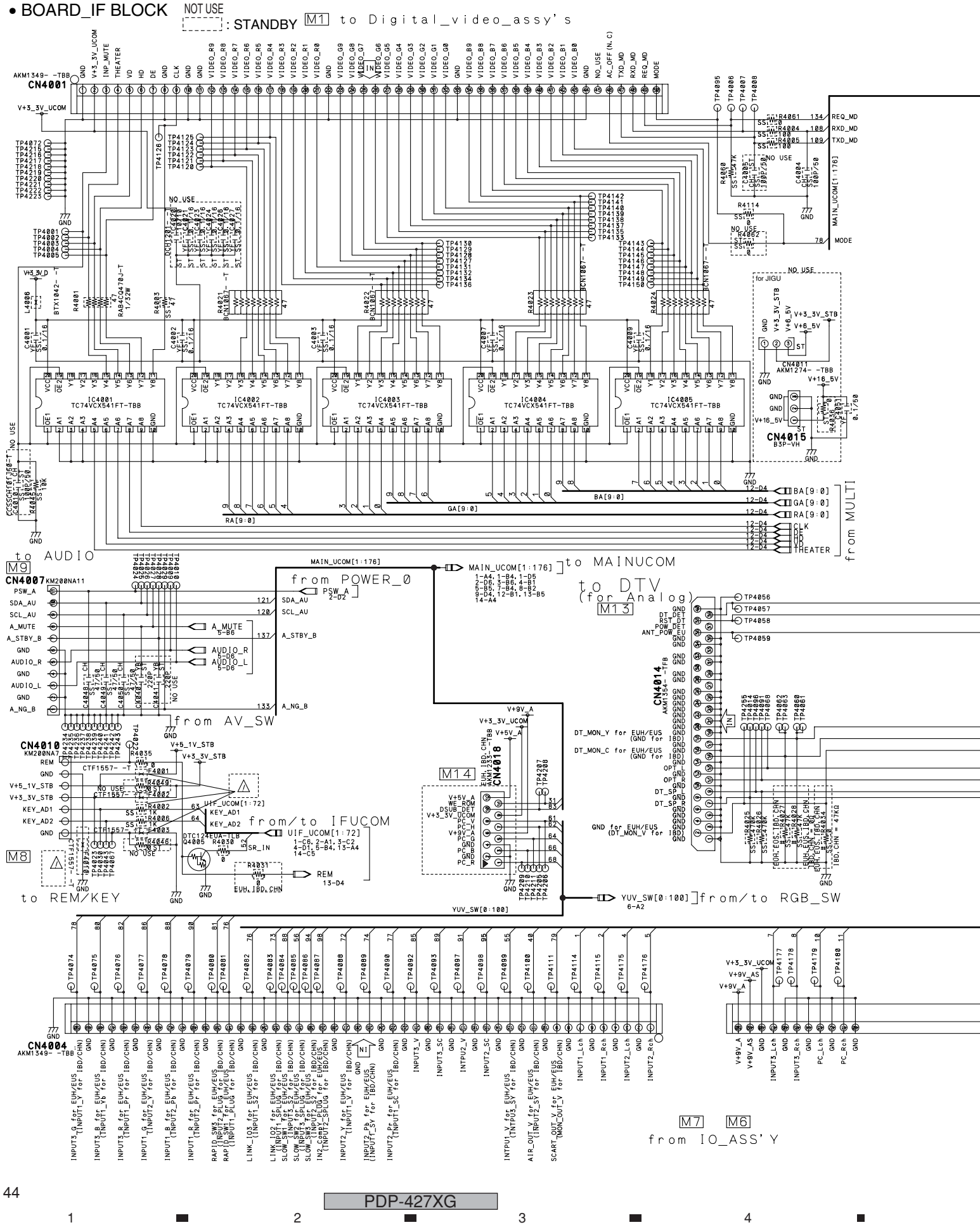
No.	Display	Content
1	SG OFF	SG Mode is OFF.
2	DIG MVDEC YCBCR	MAIN VDEC: YCbCr (Digital output mode)
3	ANA MVDEC Y	MAIN VDEC: Y (Analog output mode: SG VDEC return setting)
4	ANA SVDEC Y	SUB VDEC:Y
5	ANA AD YCBCR	AD: YcbCr (Analog output to the RGB SW)
6	ANA AD RGB	AD: RGB (Analog output to the RGB SW)

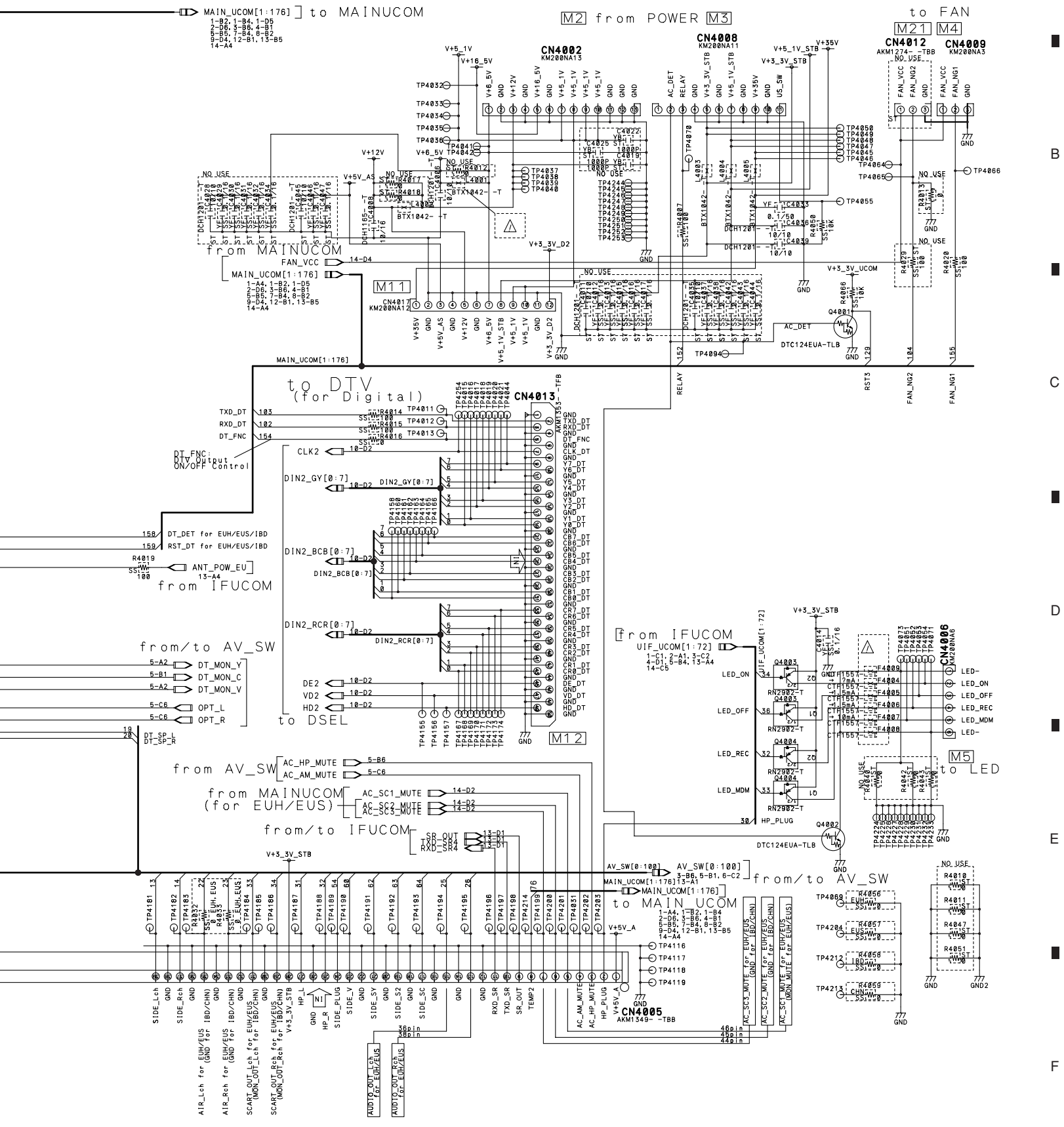
Please confirm "SG generation place" and "Route of the signal" by the block chat.

9. SCHEMATIC DIAGRAM

9.1 MAIN ASSY(1/9) [BOARD IF BLOCK]

MAIN ASSY (EU/IBD) (1/9)



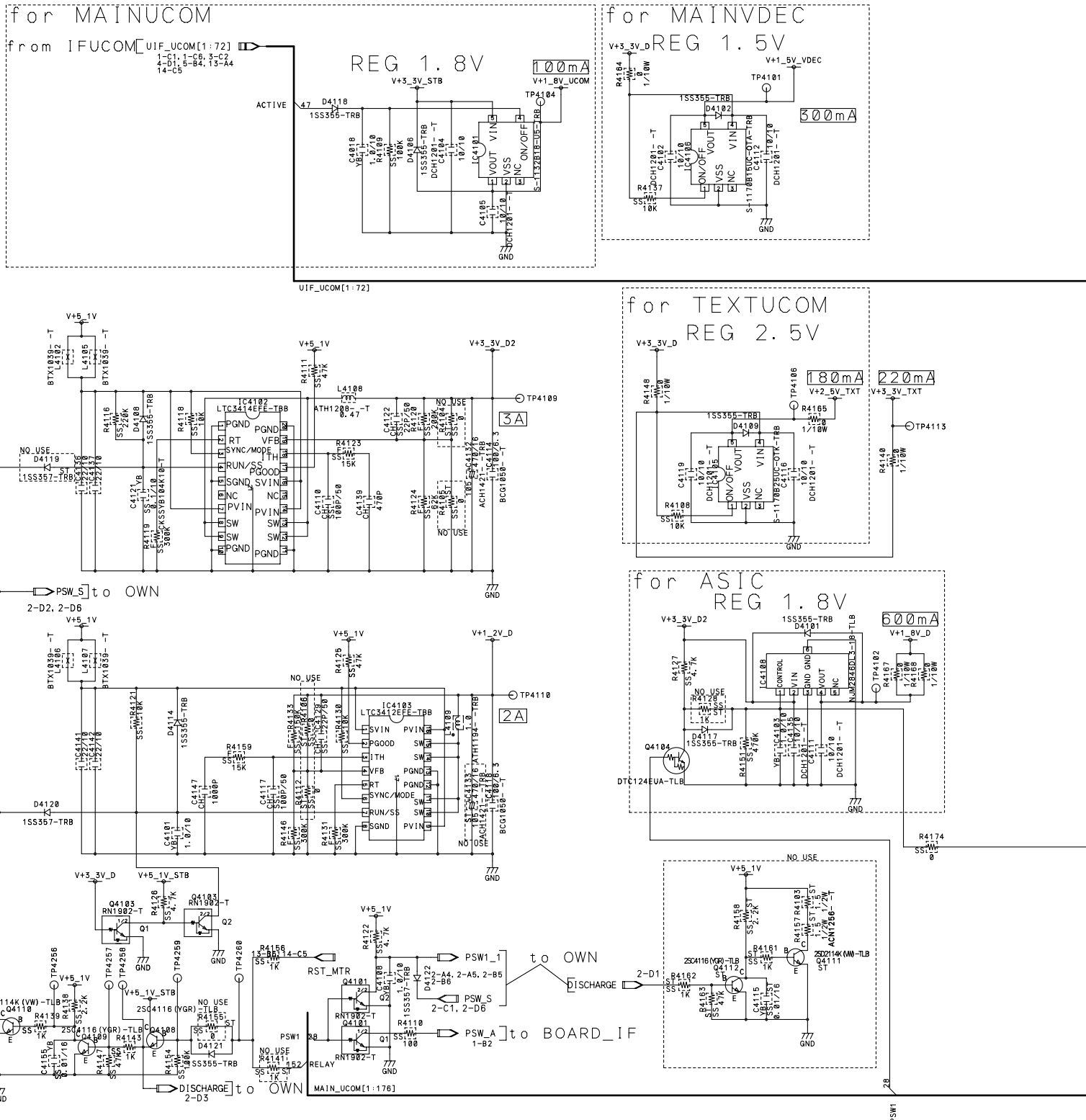

MAIN_UCOM[1:176]] to MAINUCOM
1-B2, 1-B4, 1-D5
2-D6, 5-B6, 4-B1
6-B5, 7-B4, 8-B2
9-D4, 12-B1, 13-B5
14-A4
M2 from POWER M3
to FAN
M21 M4
CN4002
KM200NA13
CN4008
KM200NA11
CN4012
AKM1274- -TBB
CN4009
KM200NA3
NO USE
from MAINUCOM
FAN_VCC
14-D4
MAIN_UCOM[1:176]
M11
CN4017
KM200NA12
MAIN_UCOM[1:176]
to DTV
(for Digital)
CN4013
AKM1353- -TFB
TXD_DT
RXD_DT
DT_FNC
DT_FNC:
DTV Output
ON/OFF Control
CLK2
DIN2_GY[0:7]
DIN2_BCB[0:7]
DIN2_RCR[0:7]
DE2
VD2
HD2
to DSEL
M12
DT_DET for EUH/EUS/IBD
RST_DT for EUH/EUS/IBD
ANT_POW_EU
13-A4
from IFUCOM
from/to AV_SW
DT_MON_Y
DT_MON_C
DT_MON_V
OPT_L
OPT_R
DT_SP_L
DT_SP_R
from IFUCOM
UIF_UCOM[1:72]
1-C1, 2-A1, 3-C2
4-D1, 5-B4, 13-A4
14-C5
LED_ON
LED_OFF
LED_REC
LED_MDM
HP_PLUG
DTC124EUA-TLB
CN4006
KM200NA6
LED-
LED_ON
LED_OFF
LED_REC
LED_MDM
LED-
M5
to LED
from AV_SW
AC_HP_MUTE
AC_AM_MUTE
from MAINUCOM
(for EUH/EUS)
AC_SC1_MUTE
AC_SC2_MUTE
AC_SC3_MUTE
from/to IFUCOM
SR_OUT
TXD_SR4
RXD_SR4
AV_SW[0:100]
MAIN_UCOM[1:176]
to MAIN_UCOM
from/to AV_SW
CN4005
AKM1349- -TBB
SIDE_Lch
SIDE_Rch
SIDE_PLUG
SIDE_V
SIDE_SV
SIDE_S2
SIDE_SC
HP_L
HP_R
RXD_SR
TXD_SR
SR_OUT
TEMP2
AC_AM_MUTE
AC_HP_MUTE
HP_PLUG
AC_SC3_MUTE
AC_SC2_MUTE
AC_SC1_MUTE
AIR_Lch for EUH/EUS (GND for IBD/CHN)
AIR_Rch for EUH/EUS (GND for IBD/CHN)
SCART_OUT_Lch for EUH/EUS (MON_OUT_Lch for IBD/CHN)
SCART_OUT_Rch for EUH/EUS (MON_OUT_Rch for IBD/CHN)
AUDIO_OUT_Lch for EUH/EUS
AUDIO_OUT_Rch for EUH/EUS

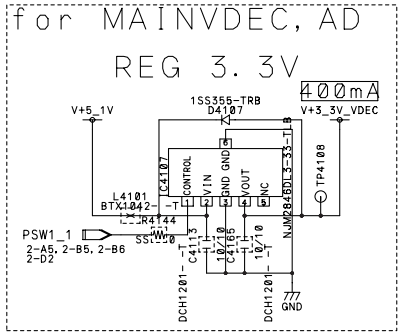
9.2 MAIN ASSY(2/9) [REG 0 BLOCK]

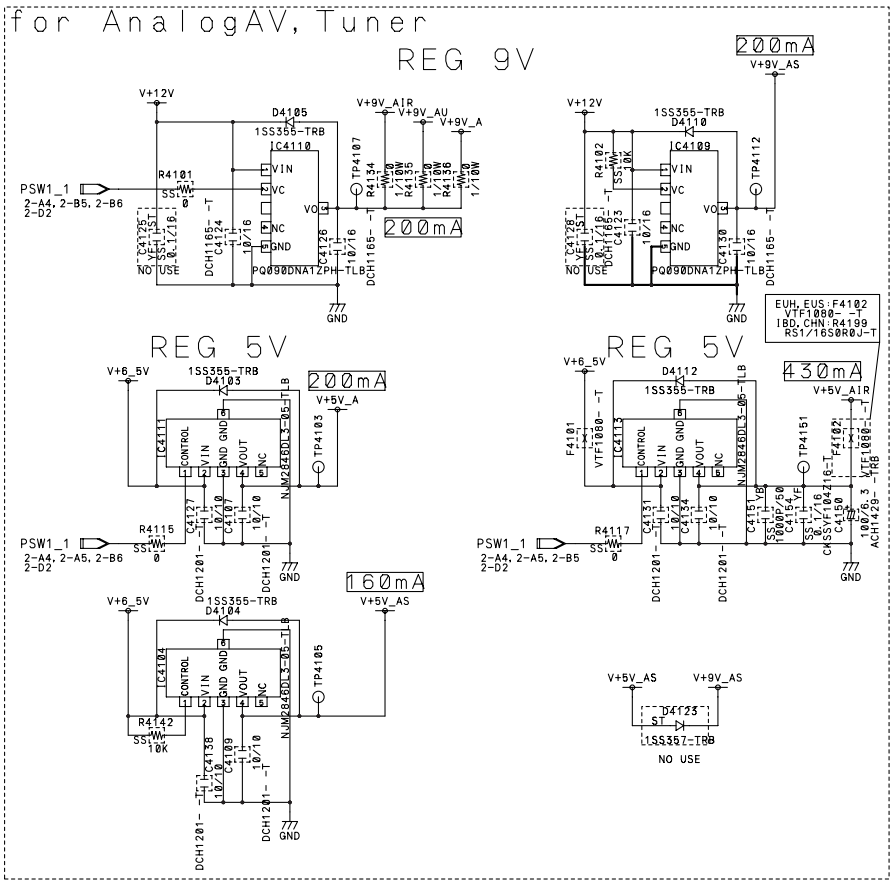
MAIN ASSY (EU/IBD) (2/9)

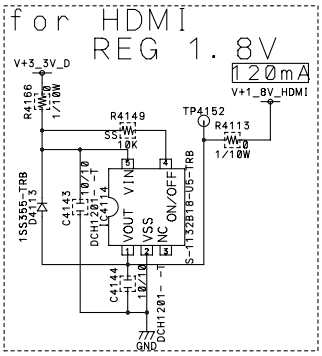
- REG_0 BLOCK

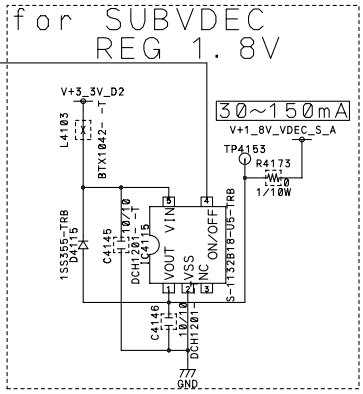
NOT USE : STANDBY

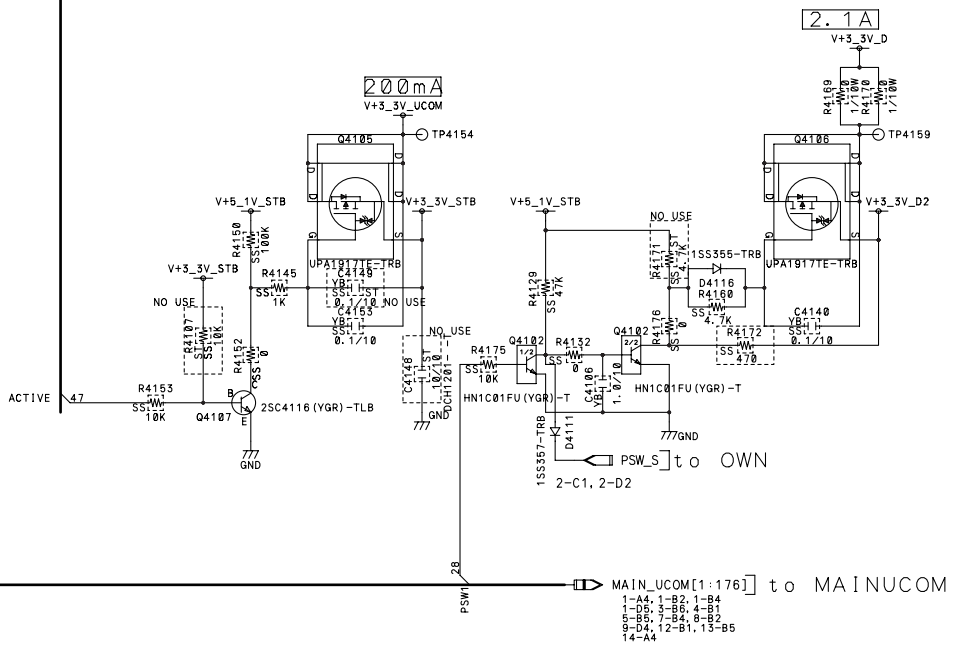










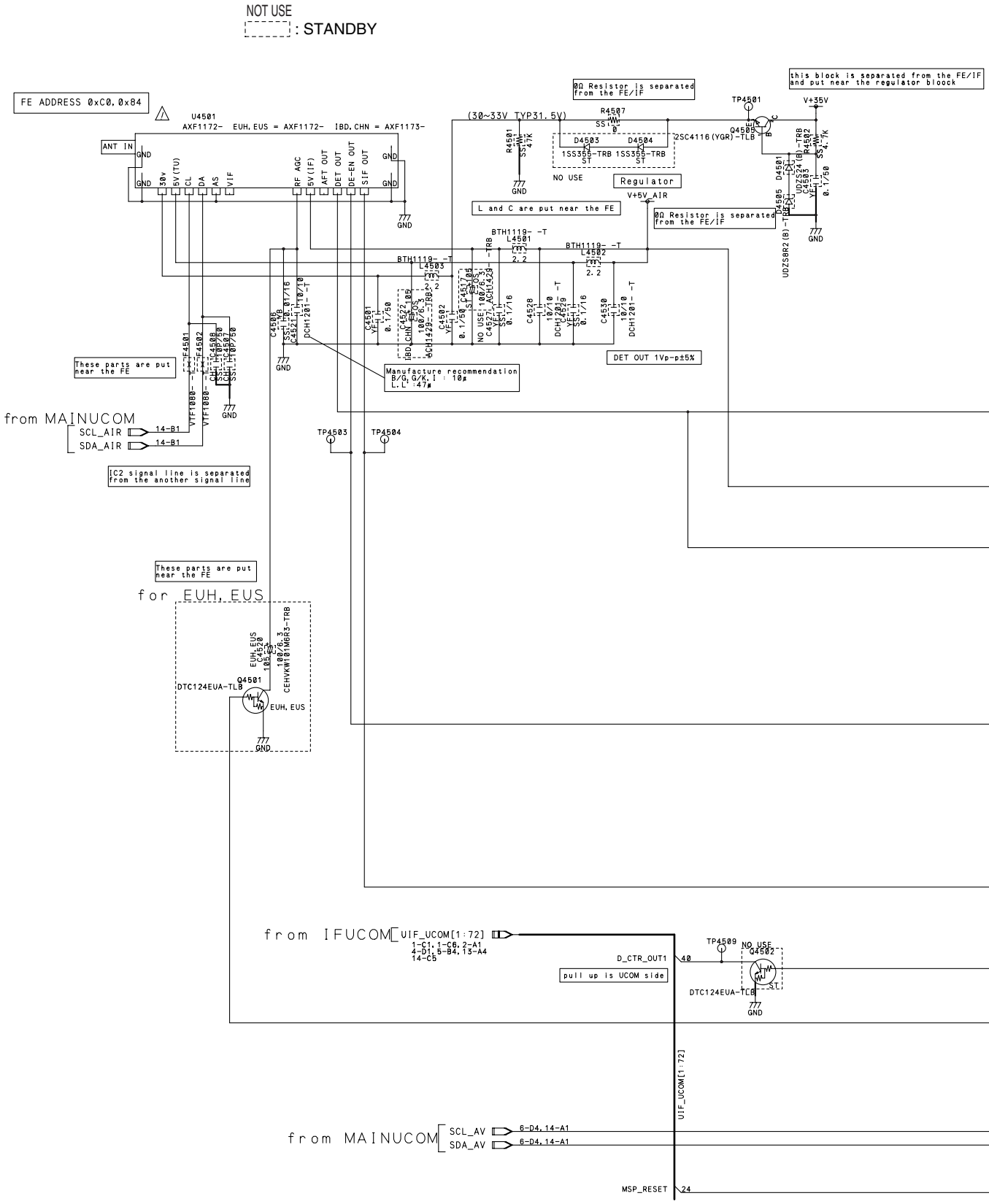


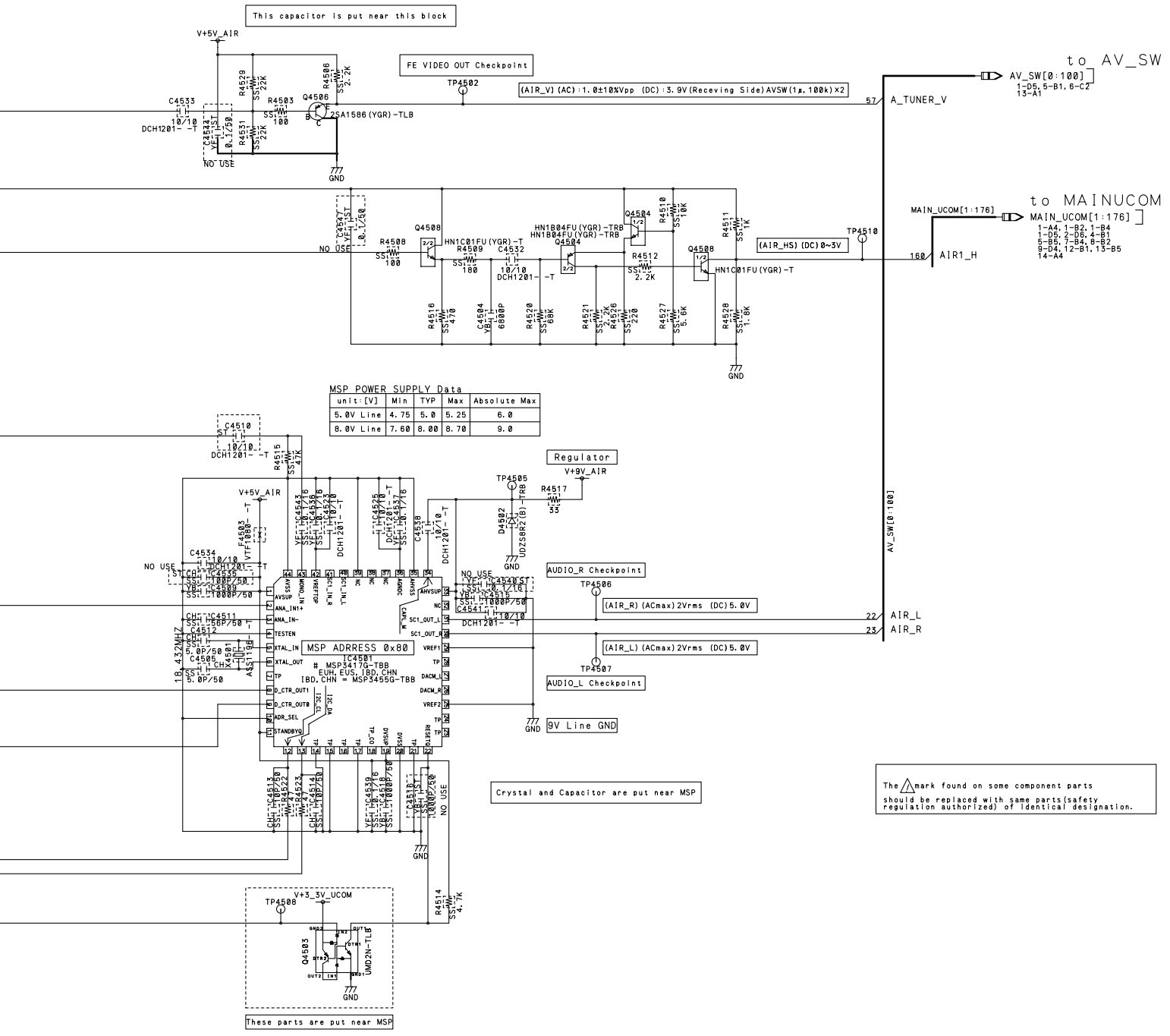
Use Resistor:ACN1268-T(R4157) and two LeadWires:ADX3513-insted of Resistor:RS1/16SS471J-T(R4172) until the suffix of MAIN PCB is changed to D.

9.3 MAIN ASSY(3/9) [ATUNER BLOCK]

MAIN ASSY (EU/IBD) (3/9)

• ATUNER BLOCK

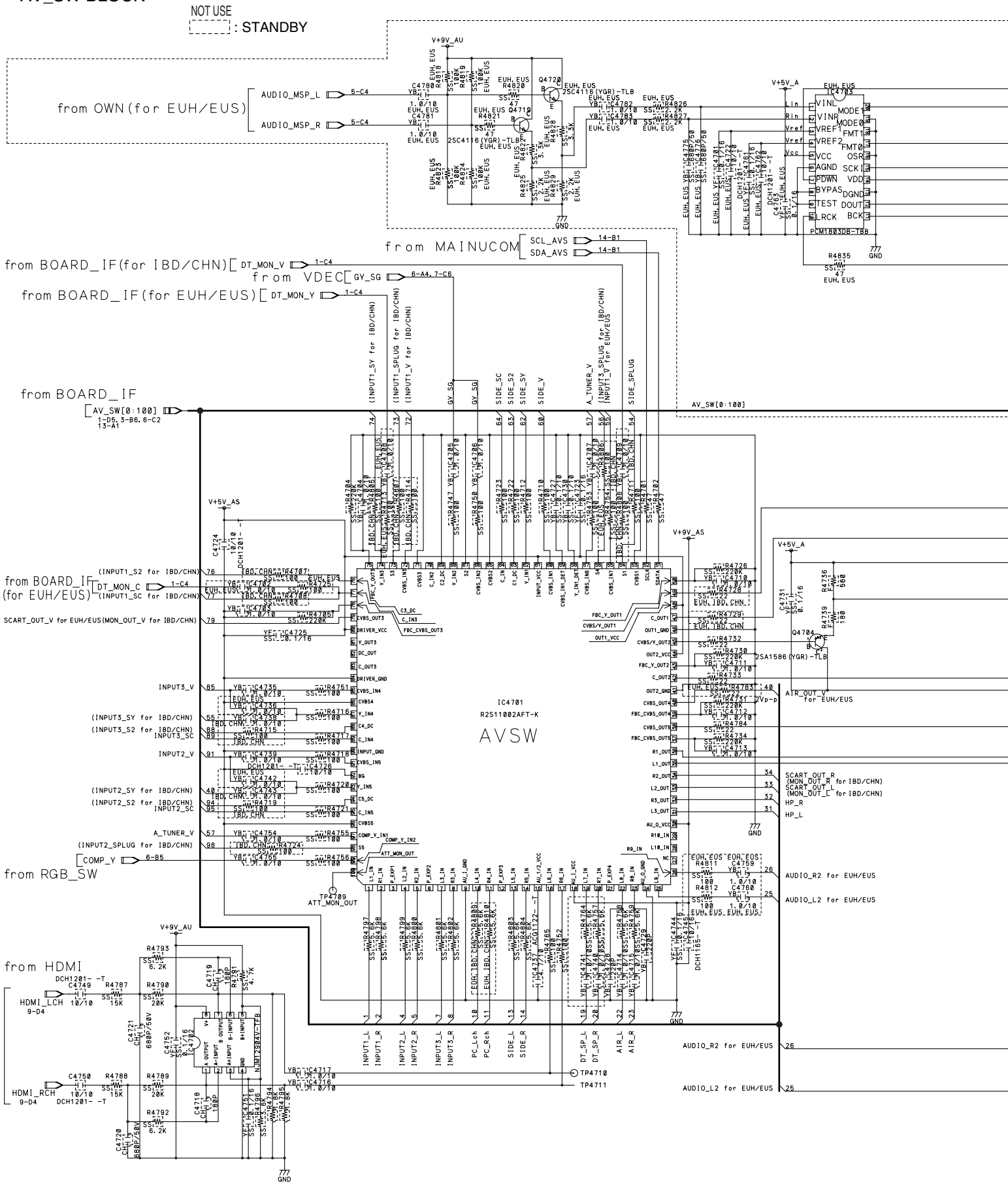


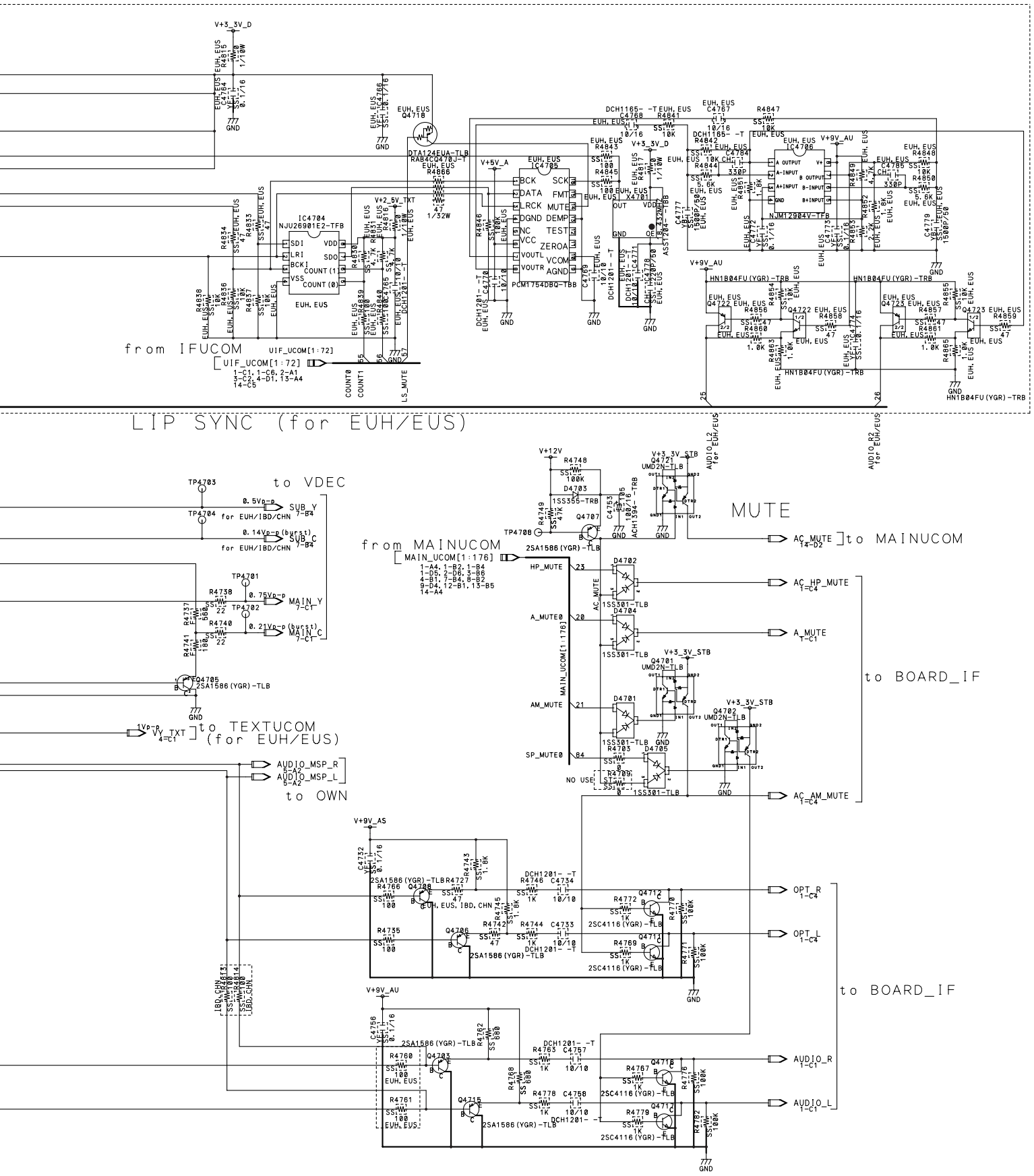

This capacitor is put near this block
V+5V_AIR
FE VIDEO OUT Checkpoint
TP4502
(AIR_V) (AC) : 1.0±10%Vpp (DC) : 3.9V (Receving Side) AVSW (1μ, 100k) ×2
to AV_SW
AV_SW[0:100]
1-D5, 5-B1, 6-C2
13-A1
57
A_TUNER_V
C4533
10/10
DCH1201- -T
R4503
SS1W
100
Q4506
2SA1586(YGR)-TLB
R4506
SS1W
2.2K
R4529
SS1W
22K
R4531
SS1W
22K
C4534
0.1/50
NO USE
GND
C4507
0.1/50
R4508
SS1W
100
Q4508
HN1C01FU(YGR)-T
R4509
SS1W
180
C4532
10/10
DCH1201- -T
Q4504
HN1B04FU(YGR)-TRB
HN1B04FU(YGR)-TRB
R4510
SS1W
10K
R4511
SS1W
1K
R4512
SS1W
2.2K
TP4510
(AIR_HS) (DC) 0~3V
to MAINUCOM
MAIN_UCOM[1:176]
MAIN_UCOM[1:176]
1-A4, 1-B2, 1-B4
1-D5, 2-D6, 4-B1
5-B5, 7-B4, 8-B2
9-D4, 12-B1, 13-B5
14-A4
160
AIR1_H
R4516
SS1W
470
C4504
6800P
R4520
SS1W
68K
R4521
SS1W
47K
R4526
SS1W
220
R4527
SS1W
5.6K
R4528
SS1W
1.8K
GND
MSP POWER SUPPLY Data
unit:[V] | Min | TYP | Max | Absolute Max
5.0V Line | 4.75 | 5.0 | 5.25 | 6.0
8.0V Line | 7.60 | 8.00 | 8.70 | 9.0
C4510
10/10
DCH1201- -T
R4515
SS1W
4.7K
Regulator
V+9V_AIR
TP4505
R4517
SS1W
33
D4502
UDZS6R2(B)-TRB
GND
V+5V_AIR
F4503
VTF1008- -T
C4534
10/10
DCH1201- -T
NO USE
C4535
SS1H 1000P/50
C4509
SS1H 1000P/50
C4511
SS1H 56P/50
C4512
CH1H 0P/50
C4505
SS1H 5.0P/50
X4501
432MHZ
A8S1196
18
IC4501
MSP3417G-TBB
EUH, EUS, IBD, CHN
IBD, CHN = MSP3455G-TBB
MSP ADRRESS 0x80
XTAL_IN
XTAL_OUT
TP
D_CTR_OUT1
D_CTR_OUT0
ADR_SEL
STANDBYQ
AVSUP
ANA_IN1+
ANA_IN-
TESTEN
NC
SC1_OUT_L
SC1_OUT_R
VREF1
DACM_L
DACM_R
VREF2
TP
TP
12S OUT
12S IN
C4536
SS1H 1000P/50
C4537
SS1H 10/16
C4538
10/10
DCH1201- -T
C4525
DCH1201- -T
C4526
SS1H 10/16
C4527
SS1H 10/16
C4540
SS1H 10/16
C4541
10/10
DCH1201- -T
NO USE
AUDIO_R Checkpoint
TP4506
(AIR_R) (ACmax) 2Vrms (DC) 5.0V
22
AIR_L
23
AIR_R
(AIR_L) (ACmax) 2Vrms (DC) 5.0V
TP4507
AUDIO_L Checkpoint
GND
9V Line GND
AV_SW[0:100]
Crystal and Capacitor are put near MSP
The △ mark found on some component parts should be replaced with same parts(safety regulation authorized) of identical designation.
C4513
SS1H 1000P/50
R4522
SS1W
47K
C4523
SS1H 1000P/50
C4524
SS1H 1000P/50
C4539
SS1H 10/16
C4518
SS1H 1000P/50
NO USE
GND
V+3_3V_UCOM
TP4508
Q4503
UMD2N-TL6
R4514
SS1W
4.7K
These parts are put near MSP

9.4 MAIN ASSY(4/9) [AV SW BLOCK]

MAIN ASSY (EU/IBD) (4/9)

• AV_SW BLOCK

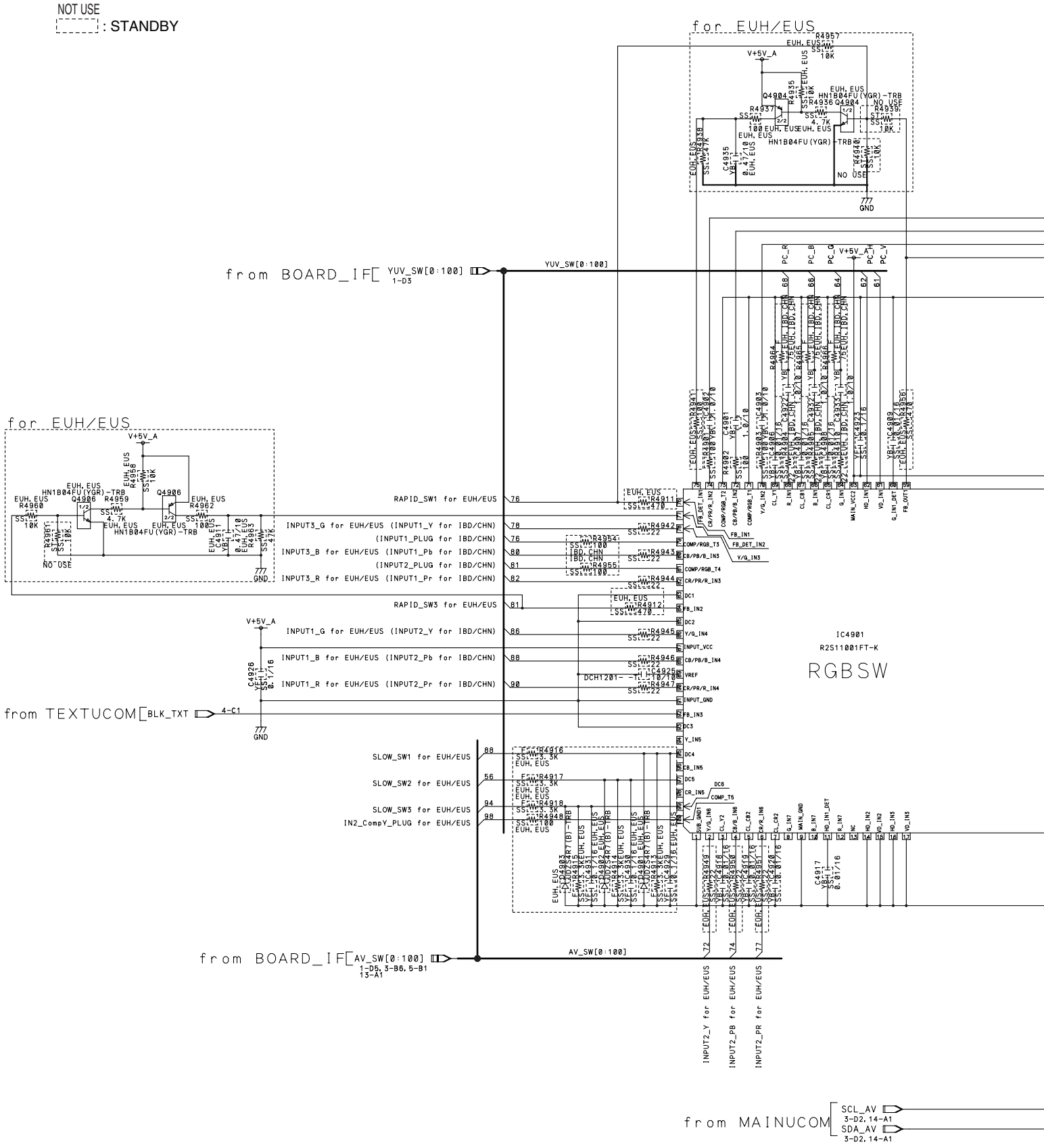


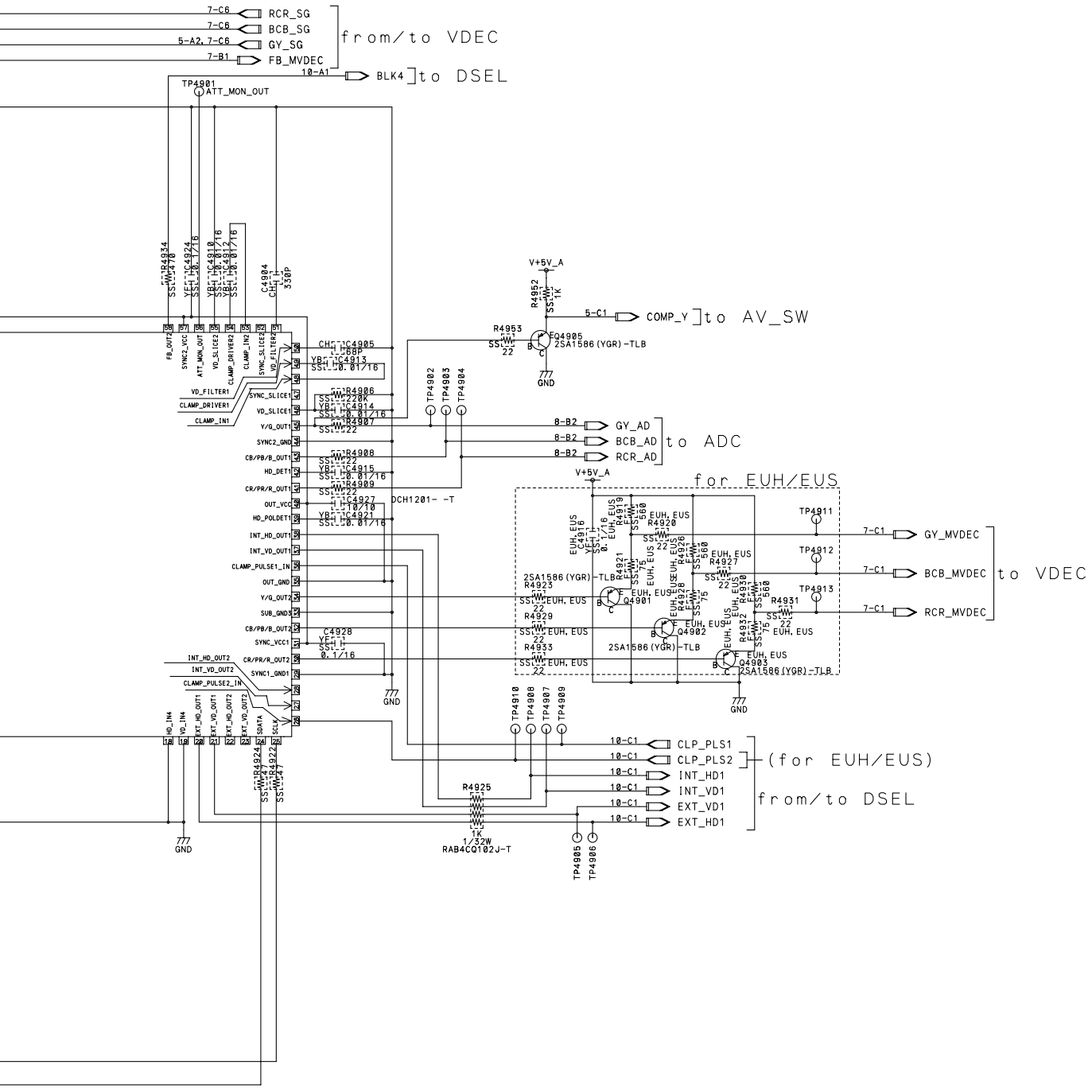

from IFUCOM
VIF_UCOM[1:72]
1-C1, 1-C6, 2-A1
3-C2, 4-D1, 13-A4
14-C5
LIP SYNC (for EUH/EUS)
to VDEC
SUB_Y
SUB_C
for EUH/IBD/CHN
MAIN_Y
MAIN_C
to TEXTUCOM
(for EUH/EUS)
V_TXT
to OWN
AUDIO_MSP_R
AUDIO_MSP_L
from MAINUCOM
MAIN_UCOM[1:176]
MUTE
AC_MUTE
to MAINUCOM
HP_MUTE
A_MUTE
AM_MUTE
SP_MUTE
NO USE
AC_HP_MUTE
AC_AM_MUTE
to BOARD_IF
OPT_R
OPT_L
AUDIO_R
AUDIO_L
IC4704
NJU26901E2-TFB
PCM1754DBQ-TBB
NJM12904V-TFB
HN1B04FU(YGR)-TRB
DTA124EUA-TLB
2SA1586(YGR)-TLB
2SC4116(YGR)-TLB
1SS355-TRB
1SS301-TLB
UMD2N-TLB

9.5 MAIN ASSY(5/9) [RGB SW BLOCK]

MAIN ASSY (EU/IBD) (5/9)

• RGB_SW BLOCK



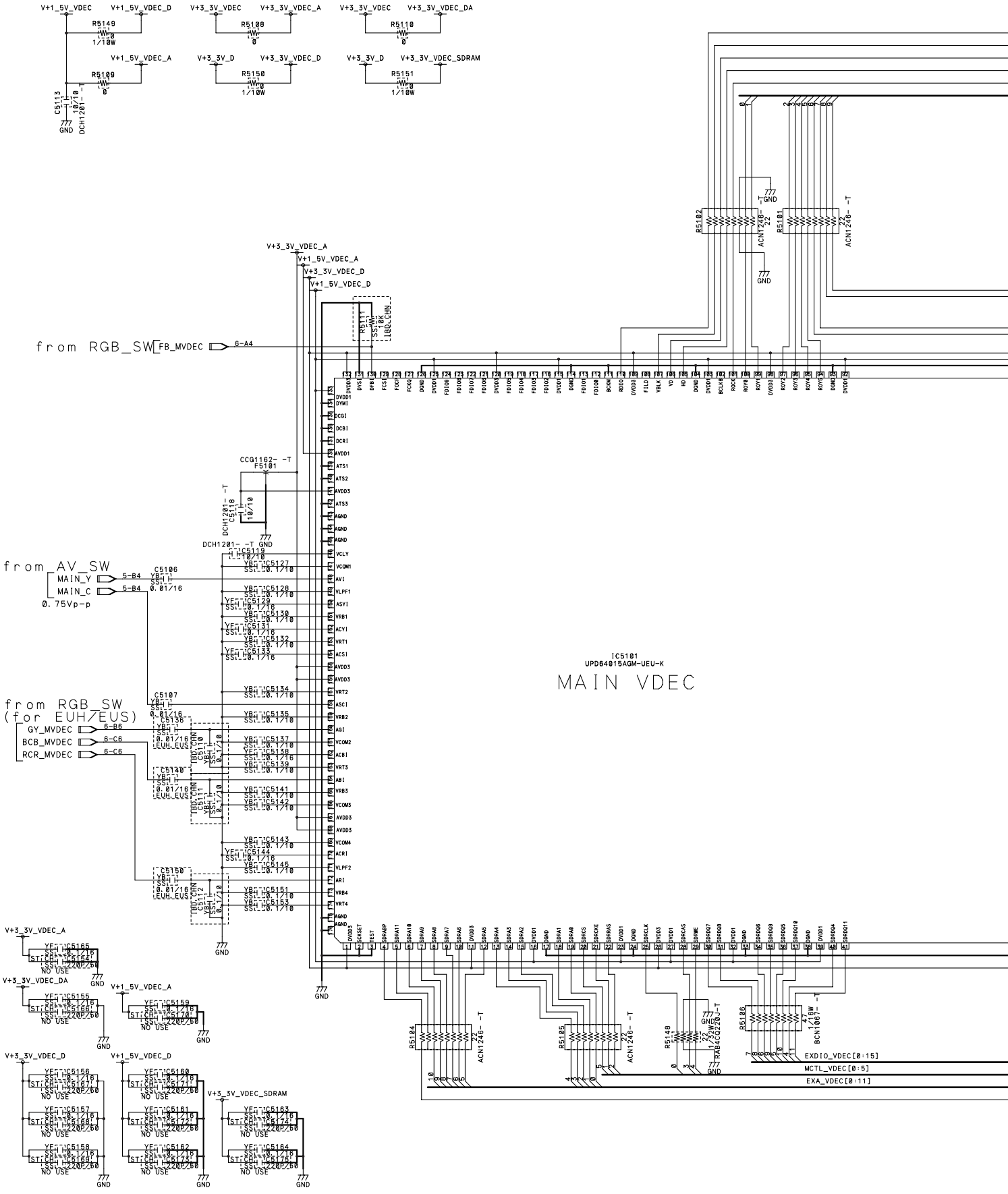

7-C6 RCR_SG
7-C6 BCB_SG
5-A2, 7-C6 GY_SG
7-B1 FB_MVDEC
from/to VDEC
10-A1 BLK4
to DSEL
TP4901
ATT_MON_OUT
V+5V_A
5-C1 COMP_Y
to AV_SW
Q4905
2SA1586(YGR)-TLB
GND
8-B2 GY_AD
8-B2 BCB_AD
8-B2 RCR_AD
to ADC
for EUH/EUS
DCH1201- -T
Q4901
Q4902
Q4903
2SA1586(YGR)-TLB
7-C1 GY_MVDEC
7-C1 BCB_MVDEC
7-C1 RCR_MVDEC
to VDEC
10-C1 CLP_PLS1
10-C1 CLP_PLS2
(for EUH/EUS)
10-C1 INT_HD1
10-C1 INT_VD1
10-C1 EXT_VD1
10-C1 EXT_HD1
from/to DSEL
R4925
1K
1/32W
RAB4CQ102J-T
TP4905
TP4906

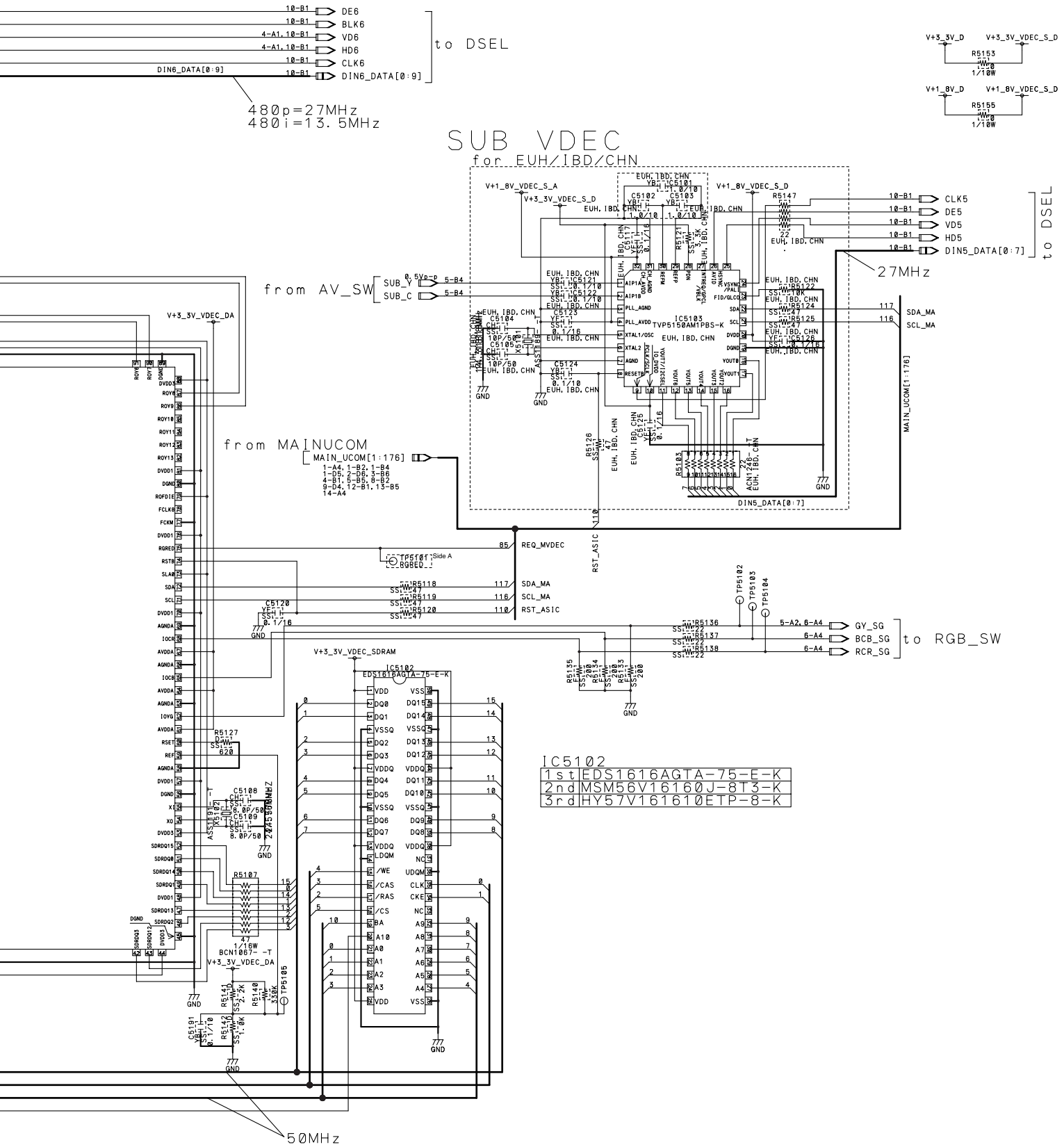
9.6 MAIN ASSY(6/9) [VDEC BLOCK]

MAIN ASSY (EU/IBD) (6/9)

• VDEC BLOCK

NOT USE
: STANDBY




SUB VDEC
for EUH/IBD/CHN
480p=27MHz
480i=13.5MHz
to DSEL
DE6
BLK6
VD6
HD6
CLK6
DIN6_DATA[0:9]
from AV_SW
SUB_Y
SUB_C
from MAINUCOM
MAIN_UCOM[1:176]
V+3_3V_VDEC_DA
V+3_3V_VDEC_SDRAM
V+1_8V_VDEC_S_A
V+3_3V_VDEC_S_D
V+1_8V_VDEC_S_D
IC5103
TVP5150AM1PBS-K
IC5102
EDS1616AGTA-75-E-K
CLK5
DE5
VD5
HD5
DIN5_DATA[0:7]
27MHz
SDA_MA
SCL_MA
RST_ASIC
REQ_MVDEC
GY_SG
BCB_SG
RCR_SG
to RGB_SW
50MHz
IC5102
1st EDS1616AGTA-75-E-K
2nd MSM56V16160J-8T3-K
3rd HY57V161610ETP-8-K

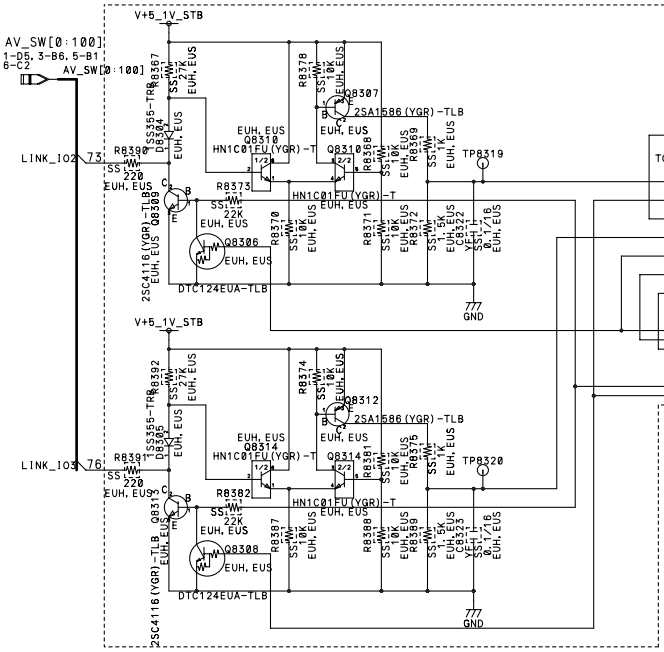
9.7 MAIN ASSY(7/9) [IF UCOM BLOCK]

MAIN ASSY (EU/IBD) (7/9)

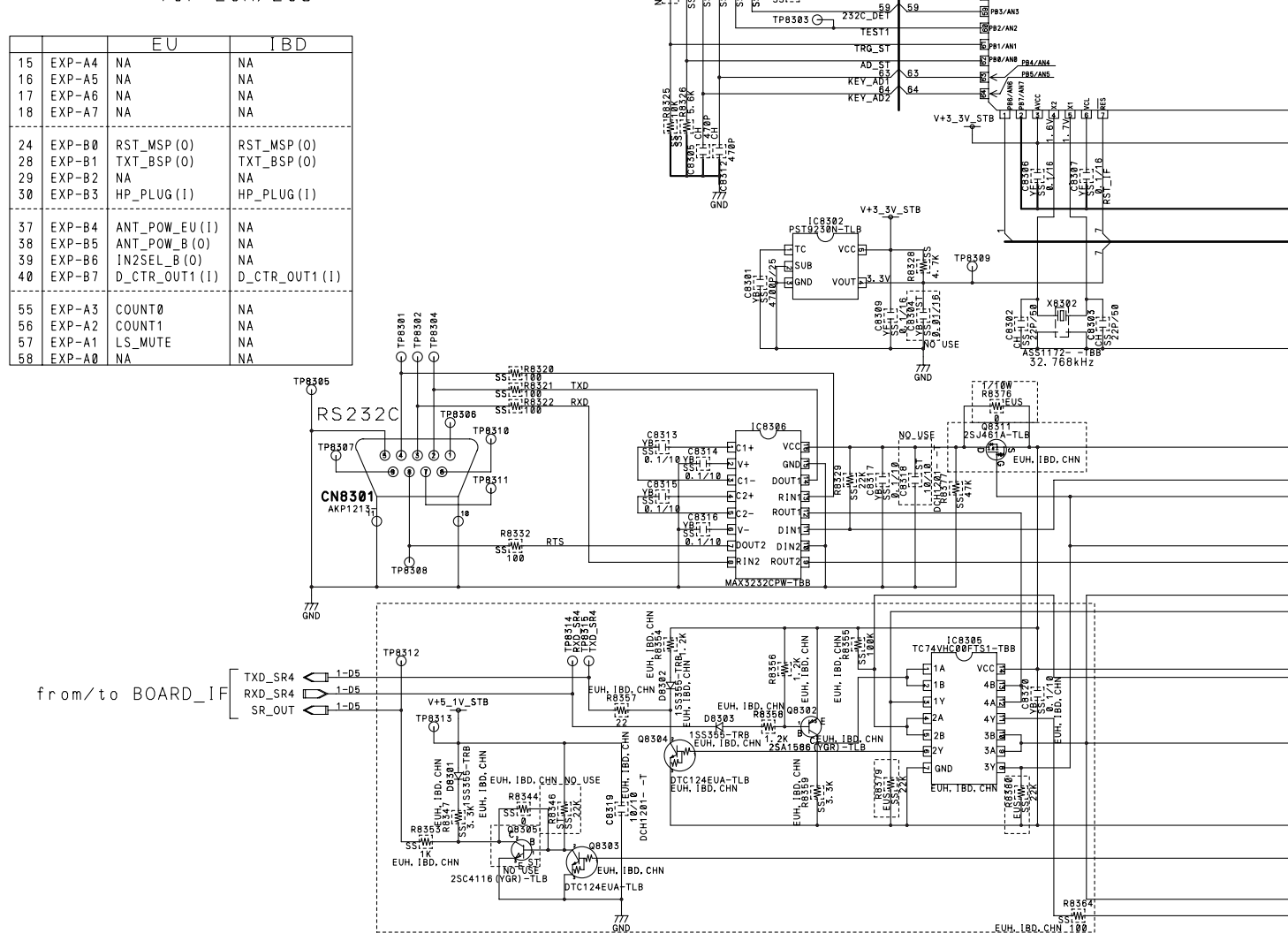
• IF_UCOM BLOCK

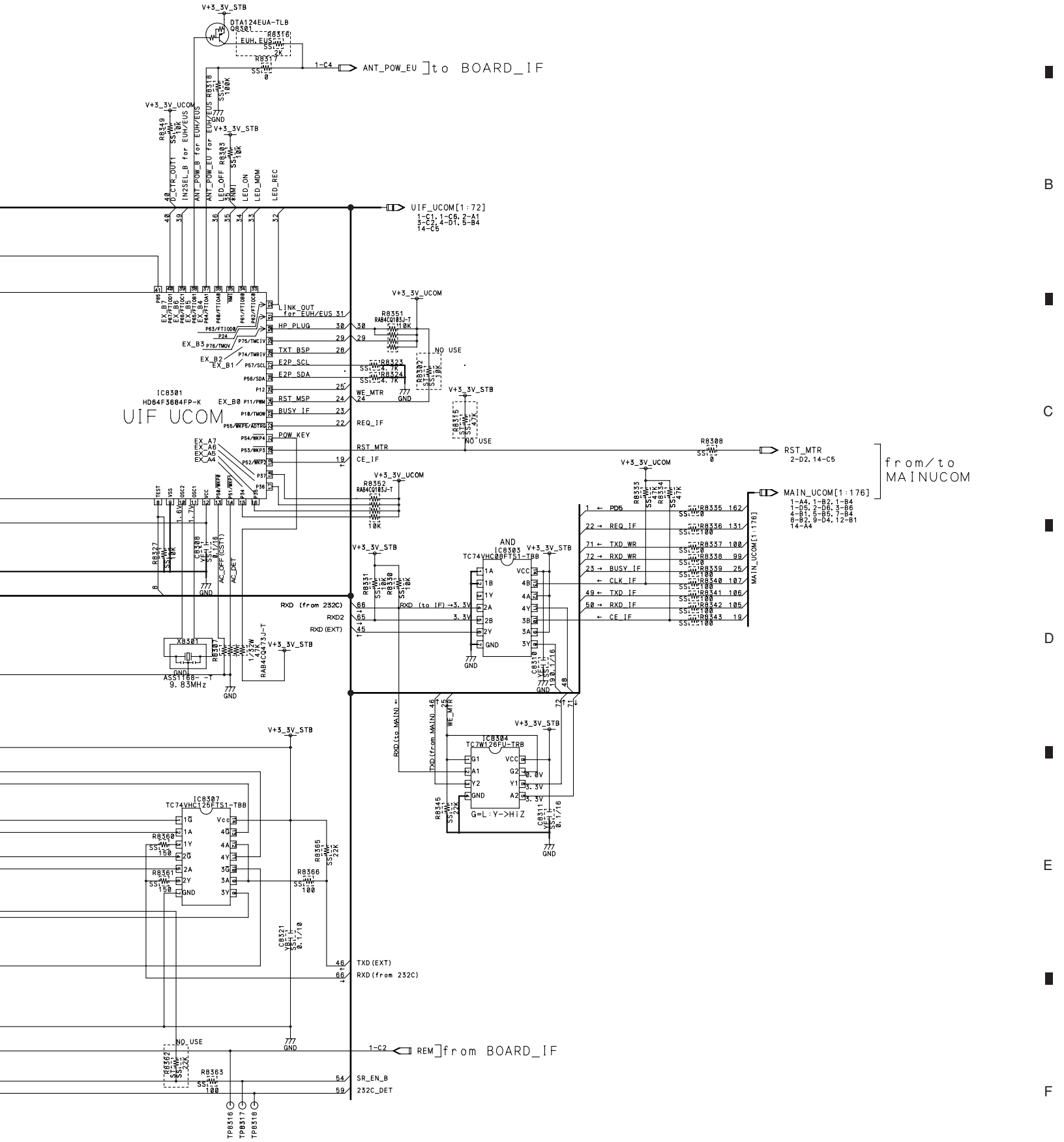
NOT USE

[ ] : STANDBY



		EU	IBD
15	EXP-A4	NA	NA
16	EXP-A5	NA	NA
17	EXP-A6	NA	NA
18	EXP-A7	NA	NA
24	EXP-B0	RST_MSP(O)	RST_MSP(O)
28	EXP-B1	TXT_BSP(O)	TXT_BSP(O)
29	EXP-B2	NA	NA
30	EXP-B3	HP_PLUG(I)	HP_PLUG(I)
37	EXP-B4	ANT_POW_EU(I)	NA
38	EXP-B5	ANT_POW_B(O)	NA
39	EXP-B6	IN2SEL_B(O)	NA
40	EXP-B7	D_CTR_OUT1(I)	D_CTR_OUT1(I)
55	EXP-A3	COUNT0	NA
56	EXP-A2	COUNT1	NA
57	EXP-A1	LS_MUTE	NA
58	EXP-A0	NA	NA

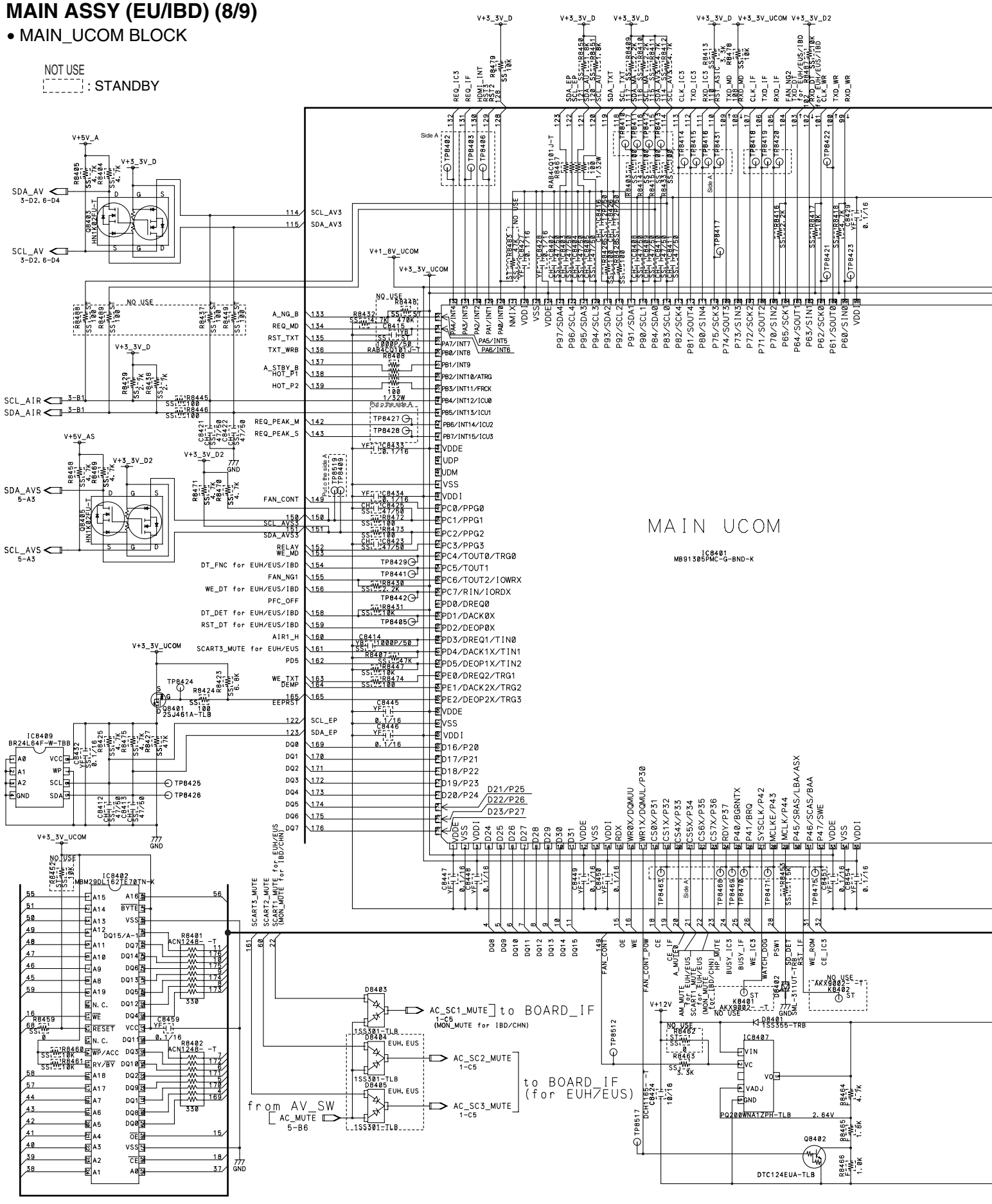


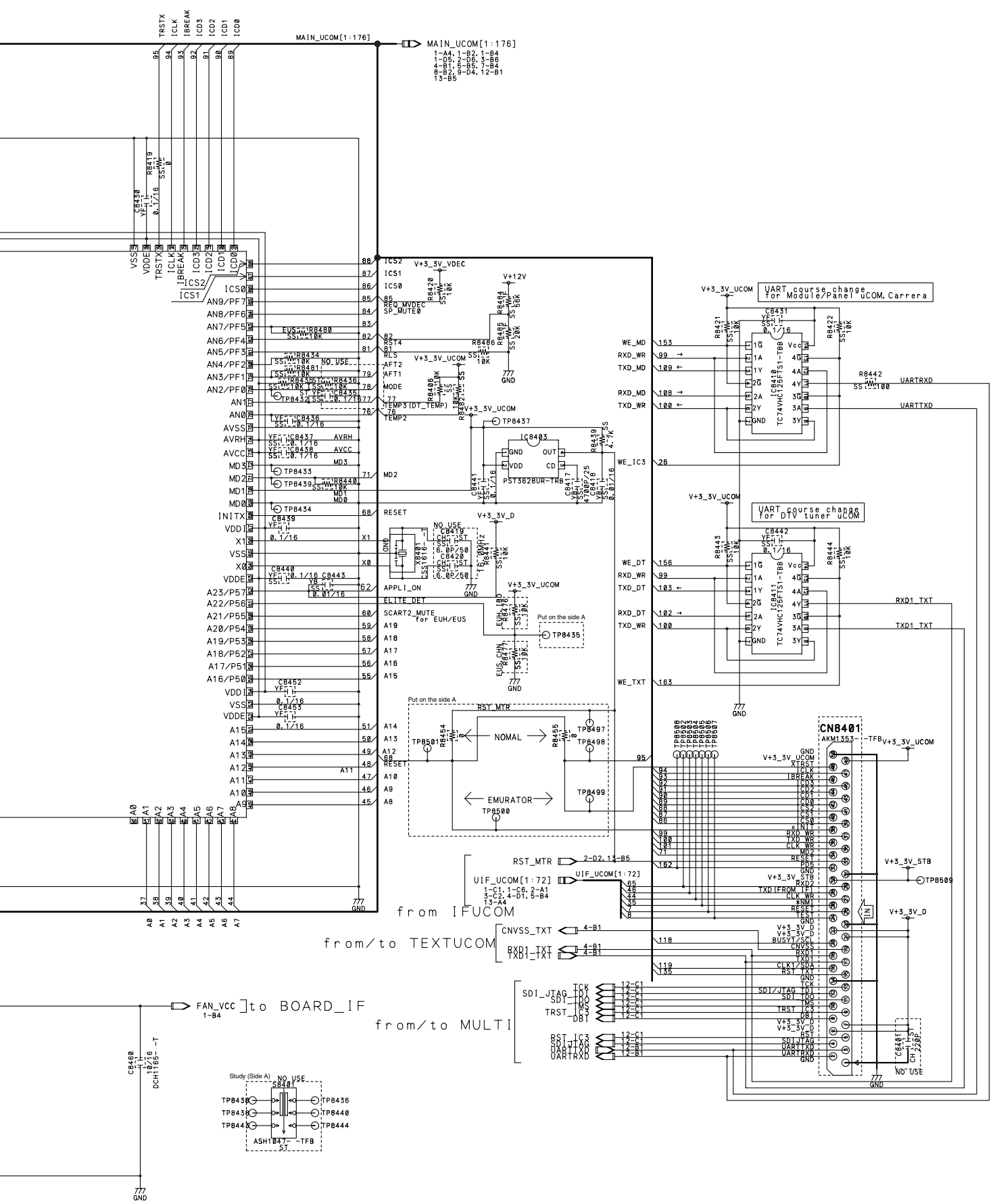

V+3_3V_STB
DTA124EUA-TLB
Q8301
R8316
EUH, EUS
2K
R8317
0
1-C4
ANT_POW_EU
to BOARD_IF
R8318
100K
V+3_3V_UCOM
R8349
10K
GND
R8303
10K
IN2SEL_B for EUH/EUS
ANT_POW_B for EUH/EUS
ANT_POW_EU for EUH/EUS
LED_OFF
LED_ON
LED_MDM
LED_REC
UIF_UCOM[1:72]
1-C1, 1-C6, 2-A1
3-C2, 4-D1, 5-B4
14-C5
IC8301
HD64F3684FP-K
UIF UCOM
LINK_OUT for EUH/EUS 31
HP PLUG 30
TXT BSP 28
E2P SCL
E2P SDA
WE_MTR 24
BUSY IF 23
REQ_IF 22
POW KEY
RST MTR
CE_IF 19
R8351
RAB4C0103J-T
10K
NO USE
R8323
2.7K
R8324
4.7K
R8302
10K
R8376
47K
R8308
0
RST_MTR
2-D2, 14-C5
from/to MAINUCOM
MAIN_UCOM[1:176]
1-A4, 1-B2, 1-B4
1-D5, 2-D6, 3-B6
4-B1, 5-B5, 7-B4
8-B2, 9-D4, 12-B1
14-A4
R8352
RAB4C0103J-T
10K
R8333
47K
R8334
47K
R8335 162
R8336 131
R8337 100
R8338 99
R8339 25
R8340 107
R8341 106
R8342 105
R8343 19
PD5
REQ_IF
TXD_WR
RXD_WR
BUSY_IF
CLK_IF
TXD_IF
RXD_IF
CE_IF
R8327
10K
C8308
0.1/16
AC_OFF (CST1)
AC_DET
AND
IC8303
TC74VHC08FTS1-TBB
R8331
10K
R8330
10K
RXD (from 232C) 66
RXD2 65
RXD (EXT) 45
RXD (to IF) →3.3V
3.3V
X8301
ASS1168-~T
9.83MHz
R8307
1/32W
4.7K
RAB4C0473J-T
C8310
0.1/16
48
72
71
RXD(to MAIN) 46
TXD(from MAIN) 46
WE_MTR 25
IC8304
TC7W126FU-TRB
0.0V
3.3V
R8345
22K
G=L:Y->HiZ
C8311
0.1/16
IC8307
TC74VHC125FTS1-TBB
R8360
150
R8361
150
R8365
22K
R8366
100
C8321
0.1/10
46 TXD(EXT)
66 RXD(from 232C)
NO USE
R8362
22K
R8363
100
1-C2
REM
from BOARD_IF
54 SR_EN_B
59 232C_DET
TP8316
TP8317
TP8318

9.8 MAIN ASSY(8/9) [MAIN UCOM BLOCK]

MAIN ASSY (EU/IBD) (8/9)

• MAIN_UCOM BLOCK

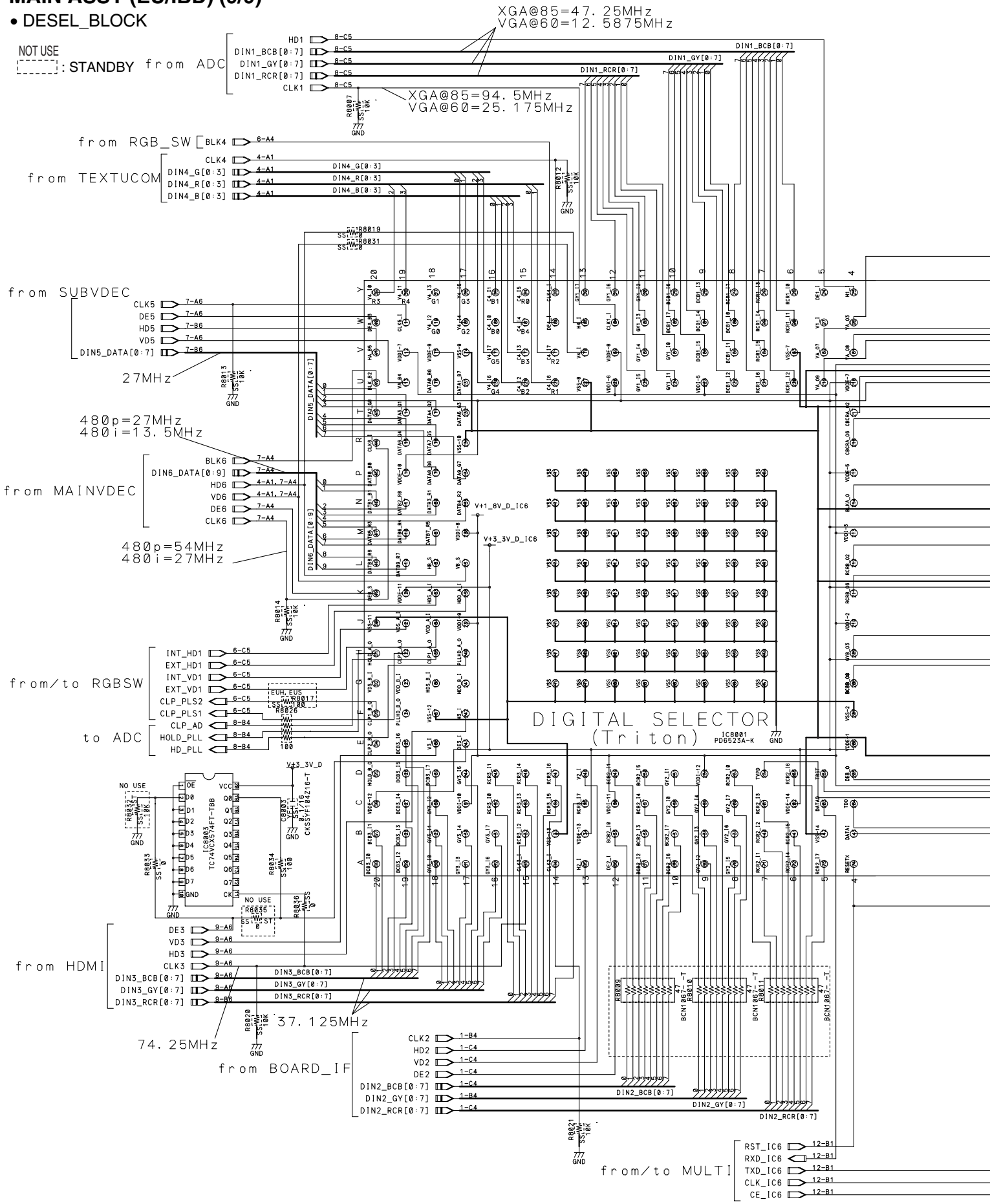


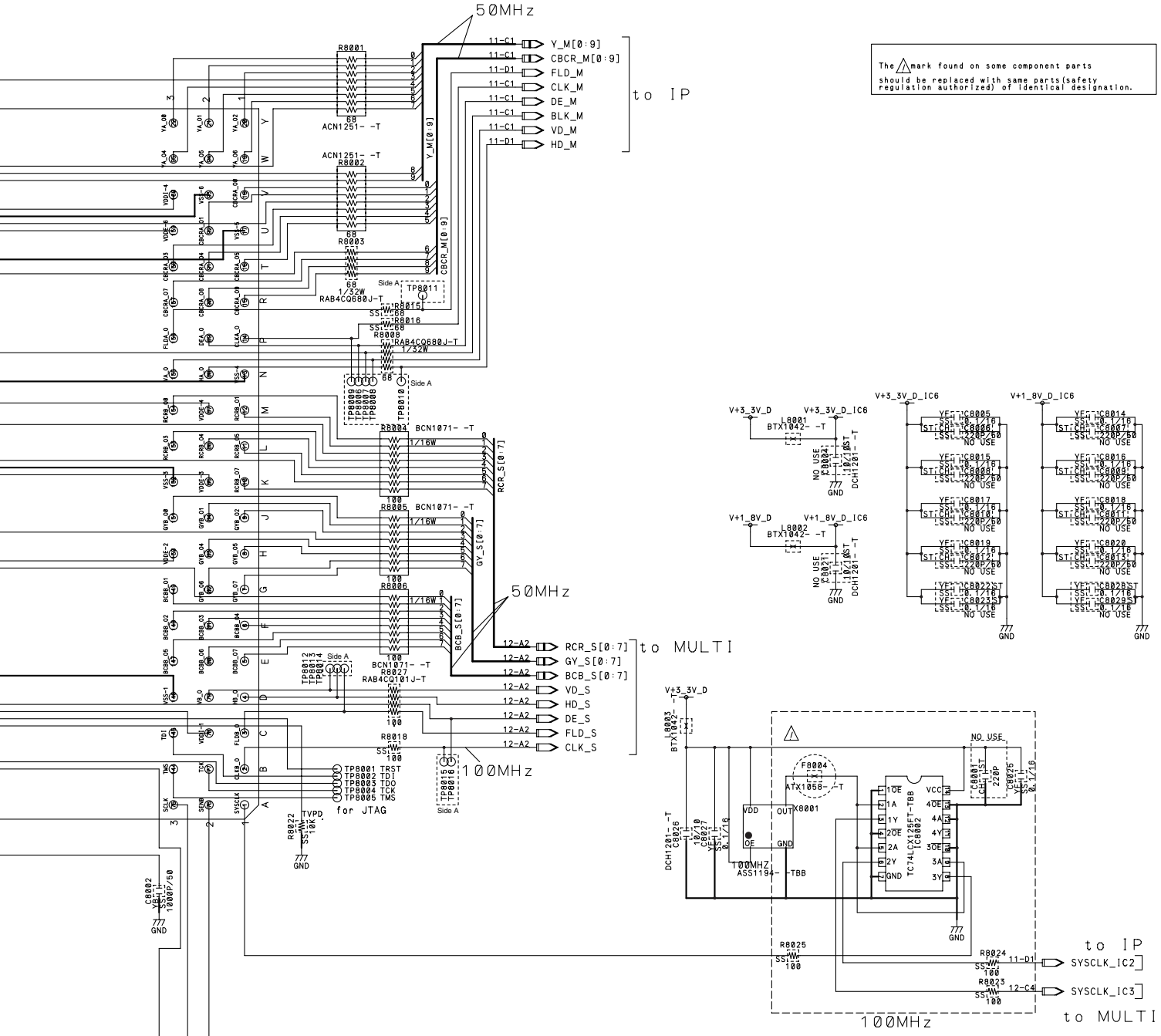

MAIN_UCOM[1:176]
MAIN_UCOM[1:176]
1-A4, 1-B2, 1-B4
1-D5, 2-D6, 3-B6
4-B1, 5-B5, 7-B4
8-B2, 9-D4, 12-B1
13-B5
TRSTX
ICLK
IBREAK
ICD3
ICD2
ICD1
ICD0
ICS2
ICS1
ICS0
AN9/PF7
AN8/PF6
AN7/PF5
AN6/PF4
AN5/PF3
AN4/PF2
AN3/PF1
AN2/PF0
AN1
AN0
AVSS
AVRH
AVCC
MD3
MD2
MD1
MD0
INITX
VDDI
X1
VSS
X0
VDDE
A23/P57
A22/P56
A21/P55
A20/P54
A19/P53
A18/P52
A17/P51
A16/P50
A15
A14
A13
A12
A11
A10
A9
A8
RESET
V+3_3V_VDEC
V+12V
V+3_3V_UCOM
V+3_3V_D
REQ_MVDEC
SP_MUTE0
AFT2
AFT1
MODE
TEMP3(DT_TEMP)
TEMP2
APPLI_ON
ELITE DET
SCART2_MUTE
for EUH/EUS
RST_MTR
NOMAL
EMURATOR
Put on the side A
UART course change
for Module/Panel uCOM, Carrera
UART course change
for DTV tuner uCOM
WE_MD
RXD_WR
TXD_MD
RXD_MD
TXD_WR
WE_IC3
WE_DT
TXD_DT
RXD_DT
WE_TXT
UARTRXD
UARTTXD
RXD1_TXT
TXD1_TXT
CN8401
AKM1353-
-TFB
V+3_3V_STB
V+3_3V_D
RST_MTR
UIF_UCOM[1:72]
from IFUCOM
CNVSS_TXT
RXD1_TXT
TXD1_TXT
from/to TEXTUCOM
SDI_JTAG_TCK
SDI_JTAG_TDI
SDI_JTAG_TDO
SDI_JTAG_TMS
TRST_JTAG
DBI
RST_IC3
SDI_JTAG
UART_TXD
UART_RXD
from/to MULTI
FAN_VCC
to BOARD_IF
Study (Side A)
NO USE
ASH1047-
-TFB
GND

9.9 MAIN ASSY(9/9) [DESEL BLOCK]

MAIN ASSY (EU/IBD) (9/9)

• DESEL_BLOCK

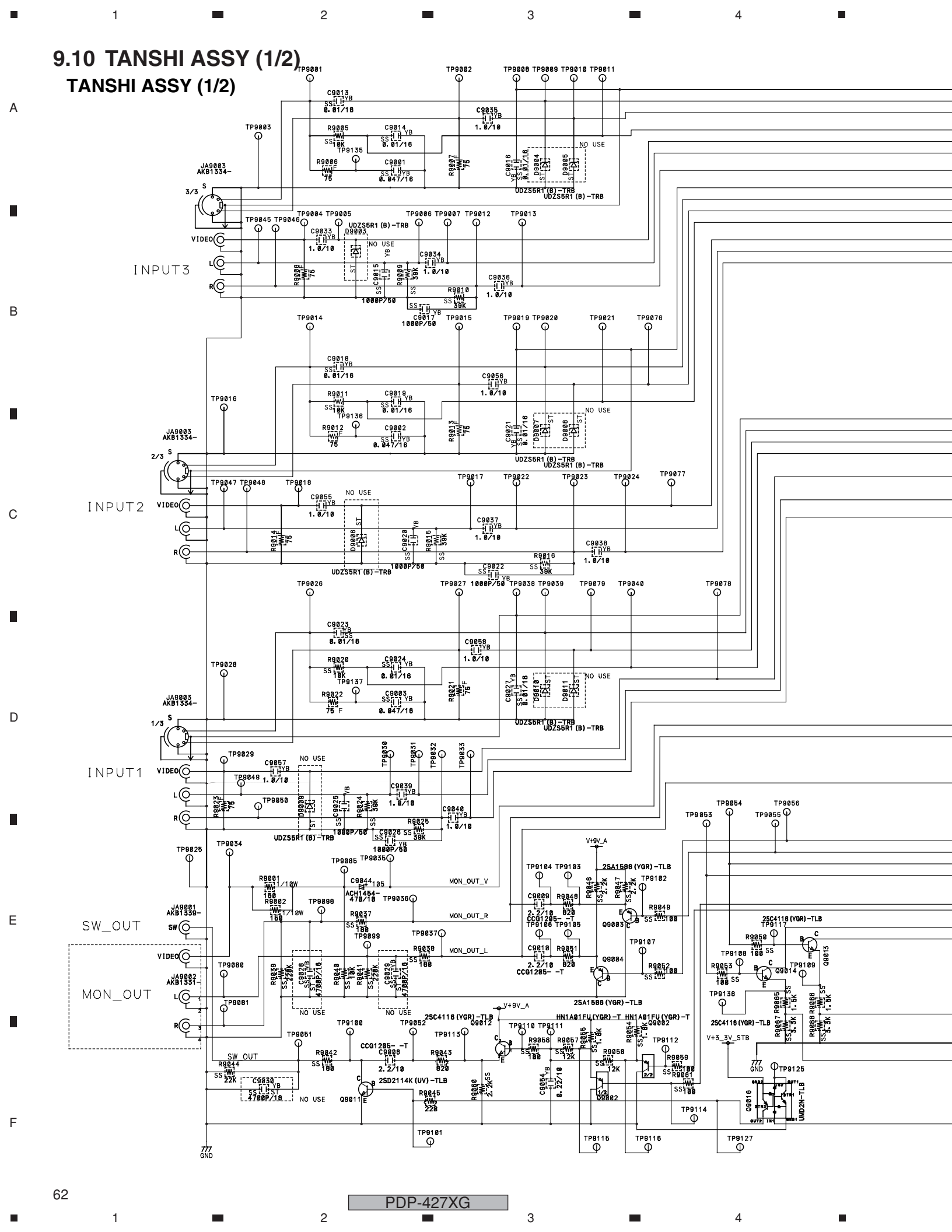


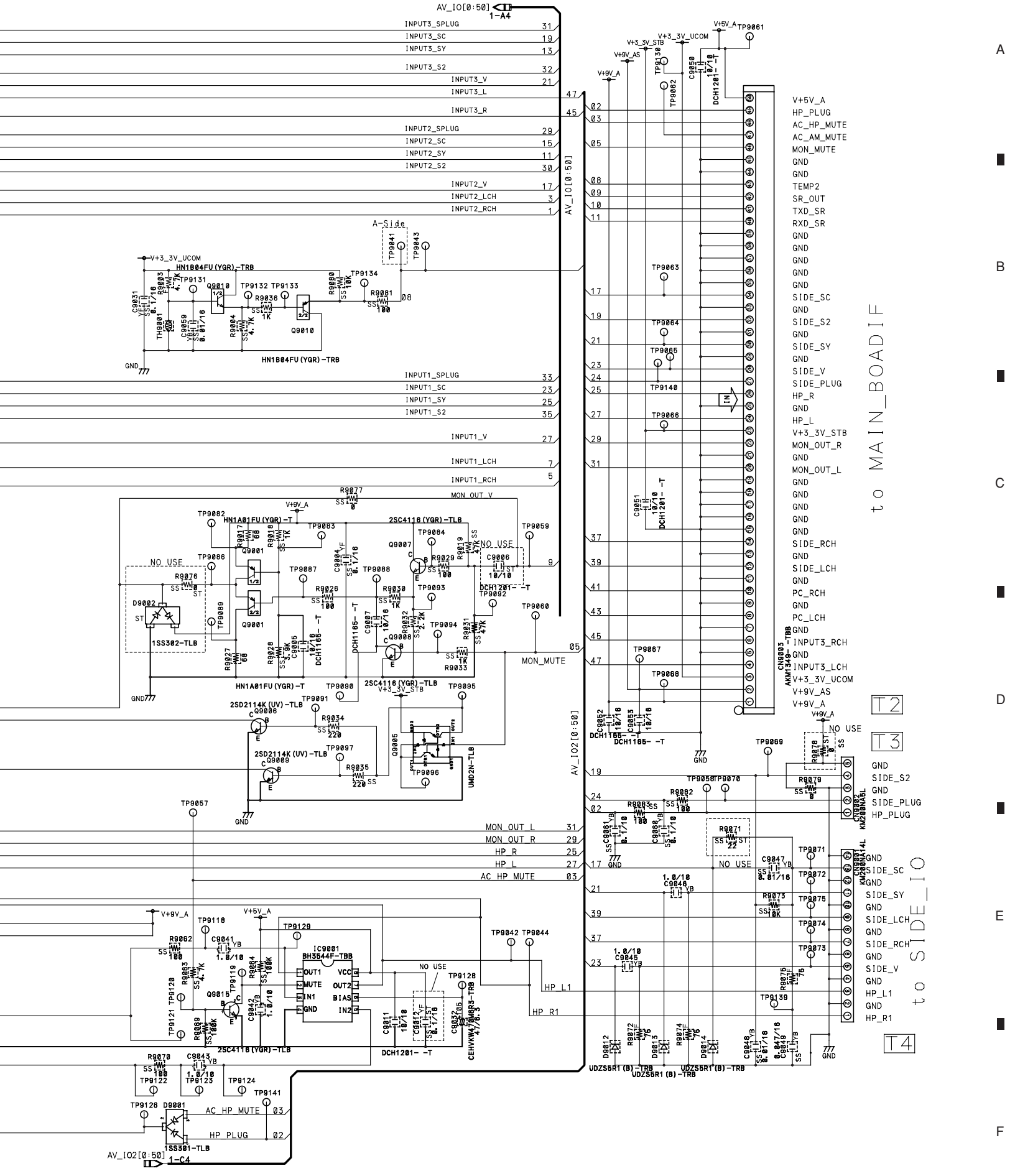


The ⚠ mark found on some component parts should be replaced with same parts(safety regulation authorized) of identical designation.

9.10 TANSHI ASSY (1/2)

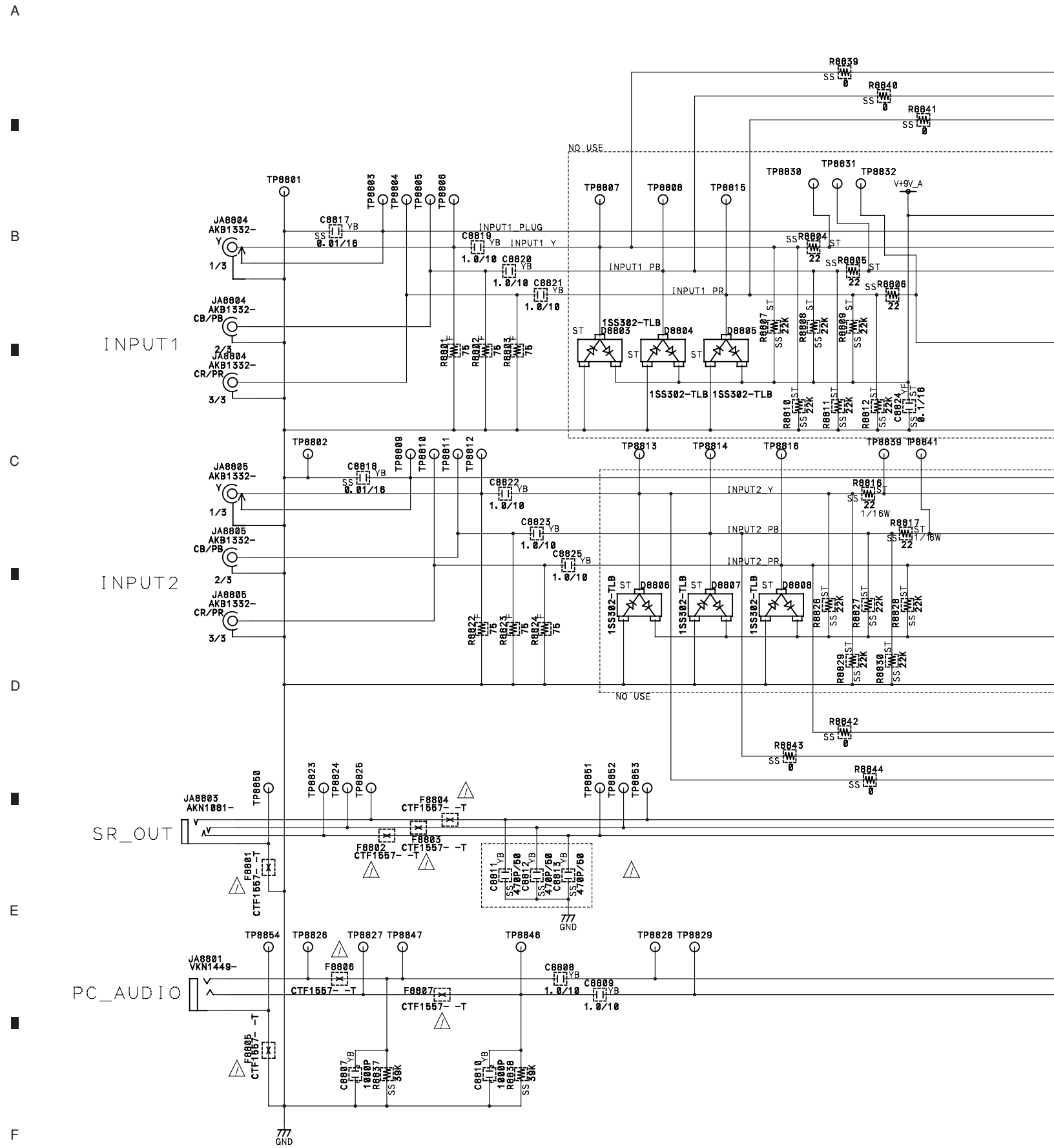
TANSHI ASSY (1/2)

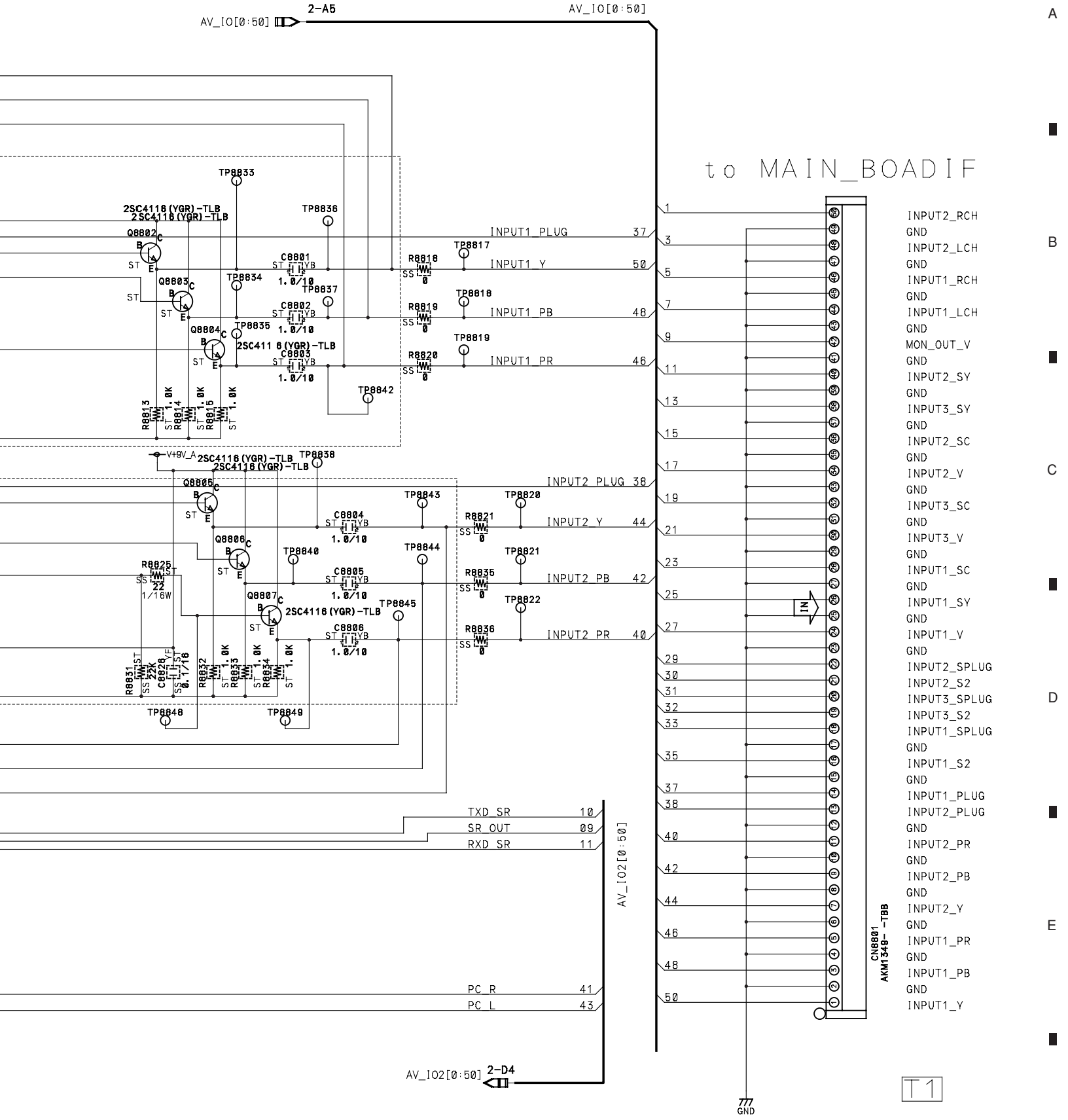



AV_IO[0:50]
1-A4
INPUT3_SPLUG
INPUT3_SC
INPUT3_SY
INPUT3_S2
INPUT3_V
INPUT3_L
INPUT3_R
INPUT2_SPLUG
INPUT2_SC
INPUT2_SY
INPUT2_S2
INPUT2_V
INPUT2_LCH
INPUT2_RCH
INPUT1_SPLUG
INPUT1_SC
INPUT1_SY
INPUT1_S2
INPUT1_V
INPUT1_LCH
INPUT1_RCH
MON_OUT_V
MON_MUTE
MON_OUT_L
MON_OUT_R
HP_R
HP_L
AC_HP_MUTE
HP_L1
HP_R1
A-Side
HN1B04FU(YGR)-TRB
HN1A01FU(YGR)-T
2SC4116(YGR)-TLB
2SD2114K(UV)-TLB
1SS302-TLB
UMD2N-TLB
BH3544F-TBB
1SS301-TLB
UDZS5R1(B)-TRB
CEHVKW4R7M3R3-TRB
NO USE
V+5V_A
V+3_3V_STB
V+3_3V_UCOM
V+9V_AS
V+9V_A
GND
AV_IO2[0:50]
1-C4
to MAIN_BOADIF
CN9003 AKM1349--TBB
V+5V_A
HP_PLUG
AC_HP_MUTE
AC_AM_MUTE
MON_MUTE
TEMP2
SR_OUT
TXD_SR
RXD_SR
SIDE_SC
SIDE_S2
SIDE_SY
SIDE_V
SIDE_PLUG
HP_R
HP_L
V+3_3V_STB
MON_OUT_R
MON_OUT_L
SIDE_RCH
SIDE_LCH
PC_RCH
PC_LCH
INPUT3_RCH
INPUT3_LCH
V+3_3V_UCOM
V+9V_AS
V+9V_A
T2
T3
T4
to SIDE_IO
CN9001 KMZ200NA14L
CN9002 KMZ200NA5L
GND
SIDE_S2
SIDE_PLUG
HP_PLUG
SIDE_SC
SIDE_SY
SIDE_LCH
SIDE_RCH
SIDE_V
HP_L1
HP_R1

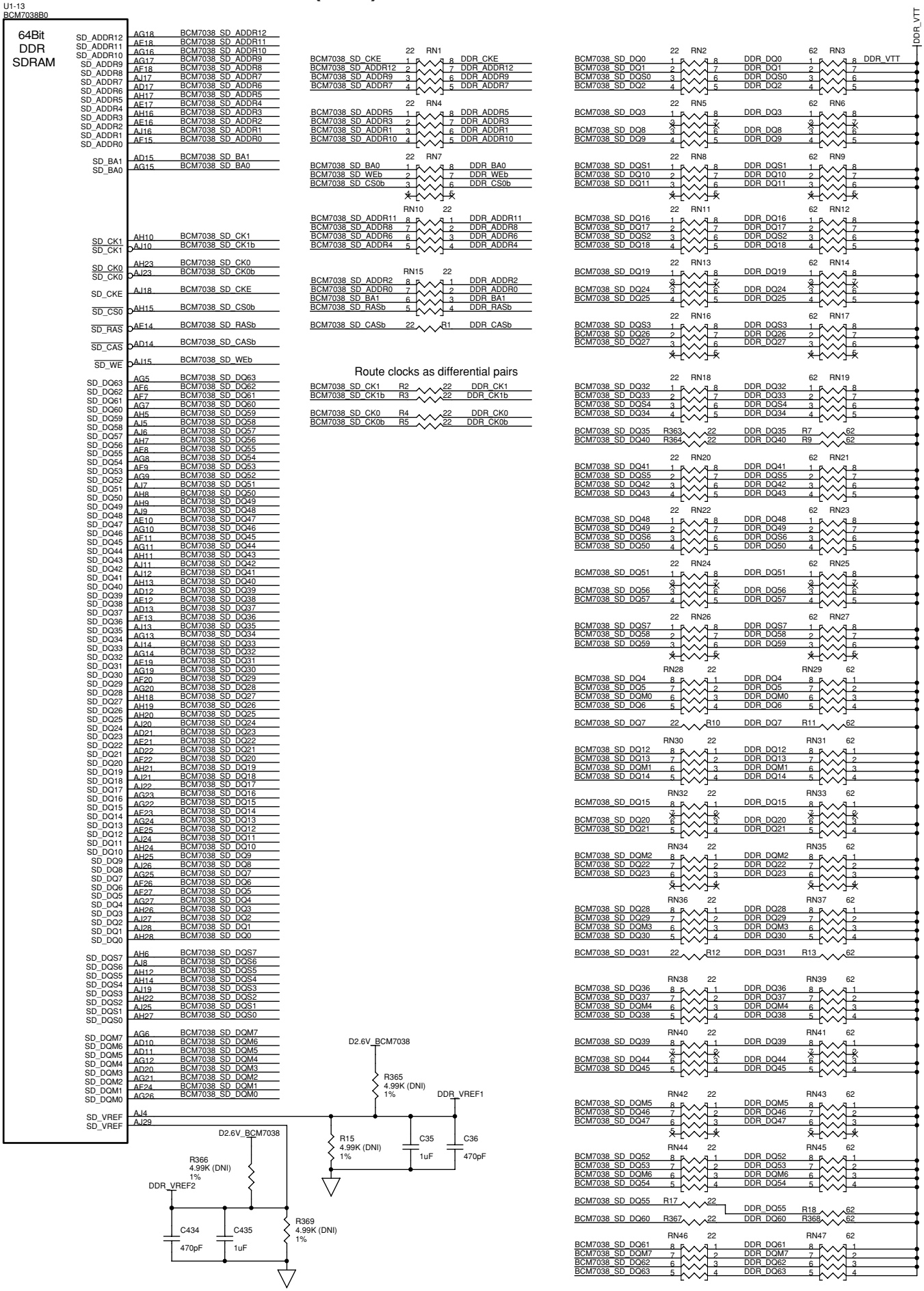
9.11 TANSHI ASSY (2/2)

TANSHI ASSY (2/2)



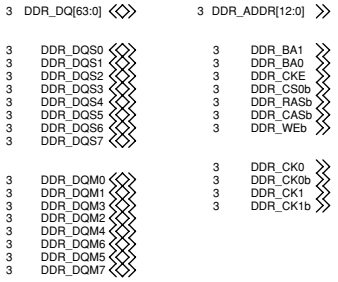

AV_IO[0:50]
2-A5
AV_IO[0:50]
to MAIN_BOADIF
INPUT1_PLUG 37
INPUT1_Y 50
INPUT1_PB 48
INPUT1_PR 46
INPUT2_PLUG 38
INPUT2_Y 44
INPUT2_PB 42
INPUT2_PR 40
TXD_SR 10
SR_OUT 09
RXD_SR 11
PC_R 41
PC_L 43
AV_IO2[0:50]
2-D4
CN8801
AKM1349- -TBB
INPUT2_RCH
GND
INPUT2_LCH
GND
INPUT1_RCH
GND
INPUT1_LCH
GND
MON_OUT_V
GND
INPUT2_SY
GND
INPUT3_SY
GND
INPUT2_SC
GND
INPUT2_V
GND
INPUT3_SC
GND
INPUT3_V
GND
INPUT1_SC
GND
INPUT1_SY
GND
INPUT1_V
GND
INPUT2_SPLUG
INPUT2_S2
INPUT3_SPLUG
INPUT3_S2
INPUT1_SPLUG
GND
INPUT1_S2
GND
INPUT1_PLUG
INPUT2_PLUG
GND
INPUT2_PR
GND
INPUT2_PB
GND
INPUT2_Y
GND
INPUT1_PR
GND
INPUT1_PB
GND
INPUT1_Y
GND
T1

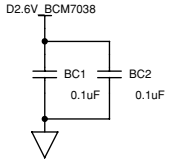
9.12 DTV TUNER BOARD (1/16)

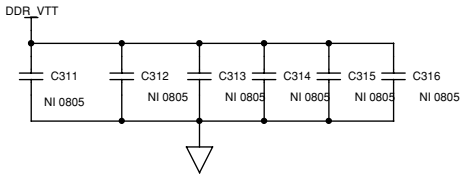


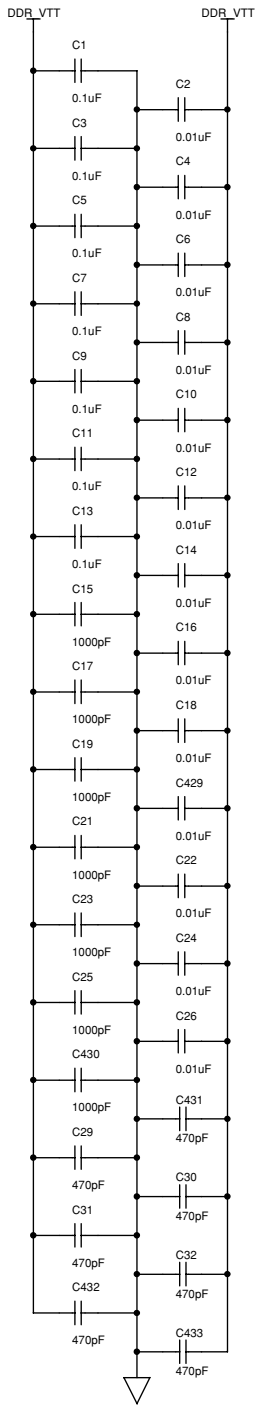
DTV MB ASSY (1/16)

• DDR TERM/CONN BLOCK









New DDR routing rules:

All timing is relative the CLK/CLKb that arrive at the destination DDR SDRAM chip.

1) X = CLK/CLKb should be a matched differential pair with a length < 4"

2) Address and control should be X +/- 0.75" (or 100 ps)
3) DQS and DQM should be X +/- 0.75" (or 100 ps)
4) All DQs should match corresponding byte lane DQS/DQMs within +/- 0.20" (or 30 ps)

5) Place 22 ohm resisters on this page near BCM7038.

6) Place 62 ohm resisters for DQ signals midpoint between BCM7038 and DDR SDRAM

7) Place DDR_VREF1/2 resistor dividers near BCM7038

8) Trace impedances need to be 60 ohms +/- 10% (54-66 ohms)

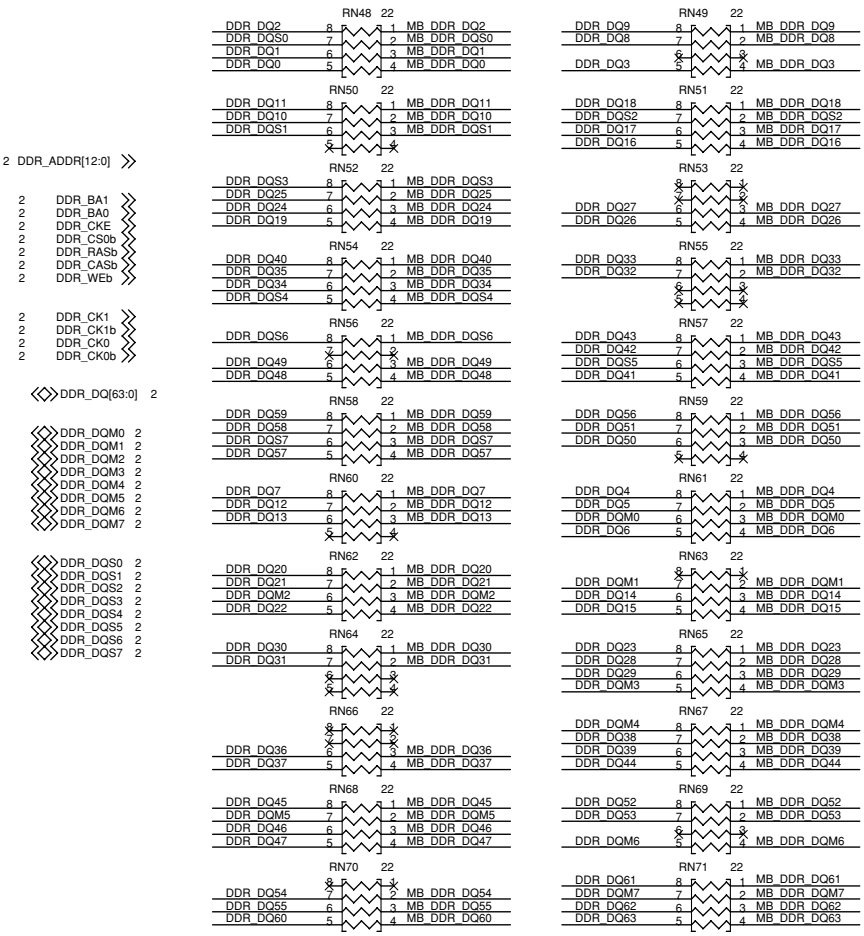
9) Route VREF with 30-mil trace and at least 1 high quality ceramic bypass capacitor for each connection to a device.

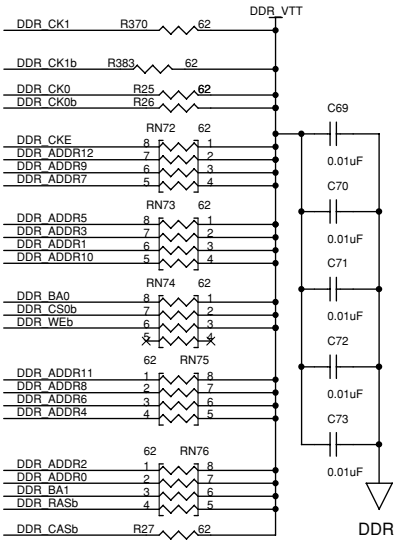
10) All traces should have a >= 3 to 1 spacing ratio fom the reference GND/PWR layer. (e.g. 15 mil line-to-line spacing for a 5 mil dielectric thickness)

9.13 DTV MB ASSY (2/16)

DTV MB ASSY (2/16)

- DDR-SDRAM BLOCK

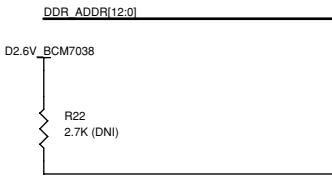


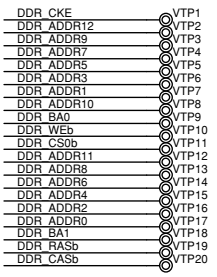


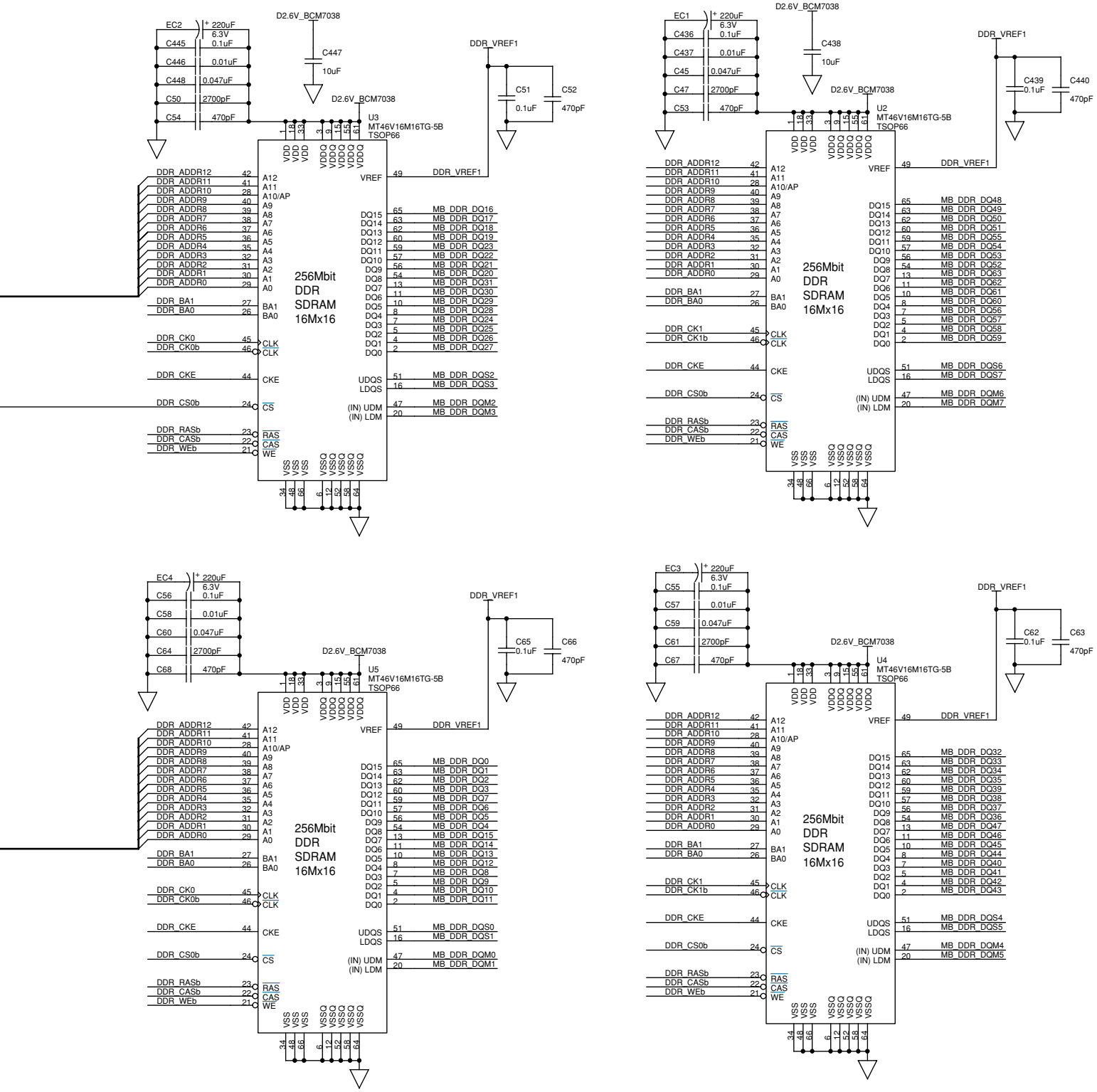
DDR routing rules:

---

1) DQ/DQM skew within bytelane (DQ[7:0], DQ[15:8], DQ[23:16], DQ[31:24]) should be +/-100 mil w.r.t DQS
2) DQS delay for a particular bytelane shall be +/-250 mil w.r.t clk
3) DQS skew across all bytelanes should be less than 250 mil
4) Address & cntrl shall be +/-500 mil w.r.t clk
5) Place 22 ohm resisters on this page near DDR SDRAM.
6) Place 51 ohm resisters for Addr/Cntrl signals at the end of the line near the DDR SDRAM
7) Place DDR_VREF resistor dividers near BCM7038
8) Trace impedances need to be 60 ohms +/- 10% (54-66 ohms)
9) Route VREF with 30-mil trace and 1 high quality ceramic bypass capacitor for each connection to a device.



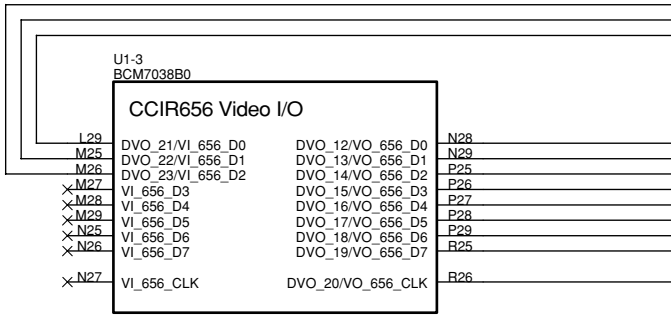


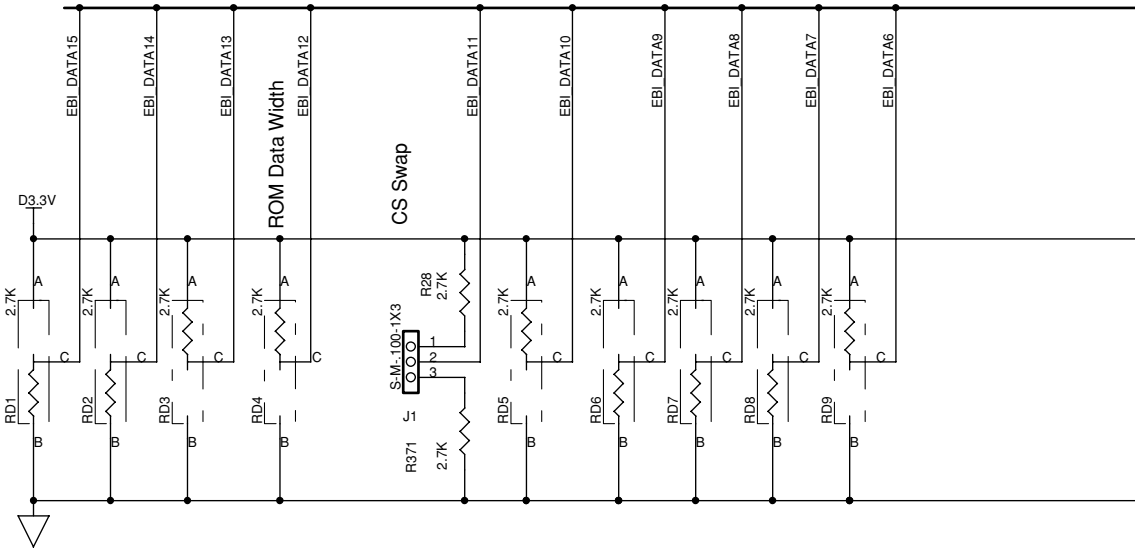

D2.6V_BCM7038
EC2
220uF
6.3V
C445 0.1uF
C446 0.01uF
C448 0.047uF
C50 2700pF
C54 470pF
C447
10uF
U3
MT46V16M16TG-5B
TSOP66
DDR_VREF1
C51 0.1uF
C52 470pF
256Mbit
DDR
SDRAM
16Mx16
DDR_ADDR12
DDR_ADDR11
DDR_ADDR10
DDR_ADDR9
DDR_ADDR8
DDR_ADDR7
DDR_ADDR6
DDR_ADDR5
DDR_ADDR4
DDR_ADDR3
DDR_ADDR2
DDR_ADDR1
DDR_ADDR0
DDR_BA1
DDR_BA0
DDR_CK0
DDR_CK0b
DDR_CKE
DDR_CS0b
DDR_RASb
DDR_CASb
DDR_WEb
MB_DDR_DQ16
MB_DDR_DQ17
MB_DDR_DQ18
MB_DDR_DQ19
MB_DDR_DQ23
MB_DDR_DQ22
MB_DDR_DQ21
MB_DDR_DQ20
MB_DDR_DQ31
MB_DDR_DQ30
MB_DDR_DQ29
MB_DDR_DQ28
MB_DDR_DQ24
MB_DDR_DQ25
MB_DDR_DQ26
MB_DDR_DQ27
MB_DDR_DQS2
MB_DDR_DQS3
MB_DDR_DQM2
MB_DDR_DQM3
EC1
220uF
6.3V
C436 0.1uF
C437 0.01uF
C45 0.047uF
C47 2700pF
C53 470pF
C438
10uF
U2
MT46V16M16TG-5B
TSOP66
DDR_VREF1
C439 0.1uF
C440 470pF
256Mbit
DDR
SDRAM
16Mx16
DDR_ADDR12
DDR_ADDR11
DDR_ADDR10
DDR_ADDR9
DDR_ADDR8
DDR_ADDR7
DDR_ADDR6
DDR_ADDR5
DDR_ADDR4
DDR_ADDR3
DDR_ADDR2
DDR_ADDR1
DDR_ADDR0
DDR_BA1
DDR_BA0
DDR_CK1
DDR_CK1b
DDR_CKE
DDR_CS0b
DDR_RASb
DDR_CASb
DDR_WEb
MB_DDR_DQ48
MB_DDR_DQ49
MB_DDR_DQ50
MB_DDR_DQ51
MB_DDR_DQ55
MB_DDR_DQ54
MB_DDR_DQ53
MB_DDR_DQ52
MB_DDR_DQ63
MB_DDR_DQ62
MB_DDR_DQ61
MB_DDR_DQ60
MB_DDR_DQ56
MB_DDR_DQ57
MB_DDR_DQ58
MB_DDR_DQ59
MB_DDR_DQS6
MB_DDR_DQS7
MB_DDR_DQM6
MB_DDR_DQM7
EC4
220uF
6.3V
C56 0.1uF
C58 0.01uF
C60 0.047uF
C64 2700pF
C68 470pF
U5
MT46V16M16TG-5B
TSOP66
DDR_VREF1
C65 0.1uF
C66 470pF
256Mbit
DDR
SDRAM
16Mx16
DDR_ADDR12
DDR_ADDR11
DDR_ADDR10
DDR_ADDR9
DDR_ADDR8
DDR_ADDR7
DDR_ADDR6
DDR_ADDR5
DDR_ADDR4
DDR_ADDR3
DDR_ADDR2
DDR_ADDR1
DDR_ADDR0
DDR_BA1
DDR_BA0
DDR_CK0
DDR_CK0b
DDR_CKE
DDR_CS0b
DDR_RASb
DDR_CASb
DDR_WEb
MB_DDR_DQ0
MB_DDR_DQ1
MB_DDR_DQ2
MB_DDR_DQ3
MB_DDR_DQ7
MB_DDR_DQ6
MB_DDR_DQ5
MB_DDR_DQ4
MB_DDR_DQ15
MB_DDR_DQ14
MB_DDR_DQ13
MB_DDR_DQ12
MB_DDR_DQ8
MB_DDR_DQ9
MB_DDR_DQ10
MB_DDR_DQ11
MB_DDR_DQS0
MB_DDR_DQS1
MB_DDR_DQM0
MB_DDR_DQM1
EC3
220uF
6.3V
C55 0.1uF
C57 0.01uF
C59 0.047uF
C61 2700pF
C67 470pF
U4
MT46V16M16TG-5B
TSOP66
DDR_VREF1
C62 0.1uF
C63 470pF
256Mbit
DDR
SDRAM
16Mx16
DDR_ADDR12
DDR_ADDR11
DDR_ADDR10
DDR_ADDR9
DDR_ADDR8
DDR_ADDR7
DDR_ADDR6
DDR_ADDR5
DDR_ADDR4
DDR_ADDR3
DDR_ADDR2
DDR_ADDR1
DDR_ADDR0
DDR_BA1
DDR_BA0
DDR_CK1
DDR_CK1b
DDR_CKE
DDR_CS0b
DDR_RASb
DDR_CASb
DDR_WEb
MB_DDR_DQ32
MB_DDR_DQ33
MB_DDR_DQ34
MB_DDR_DQ35
MB_DDR_DQ39
MB_DDR_DQ38
MB_DDR_DQ37
MB_DDR_DQ36
MB_DDR_DQ47
MB_DDR_DQ46
MB_DDR_DQ45
MB_DDR_DQ44
MB_DDR_DQ40
MB_DDR_DQ41
MB_DDR_DQ42
MB_DDR_DQ43
MB_DDR_DQS4
MB_DDR_DQS5
MB_DDR_DQM4
MB_DDR_DQM5

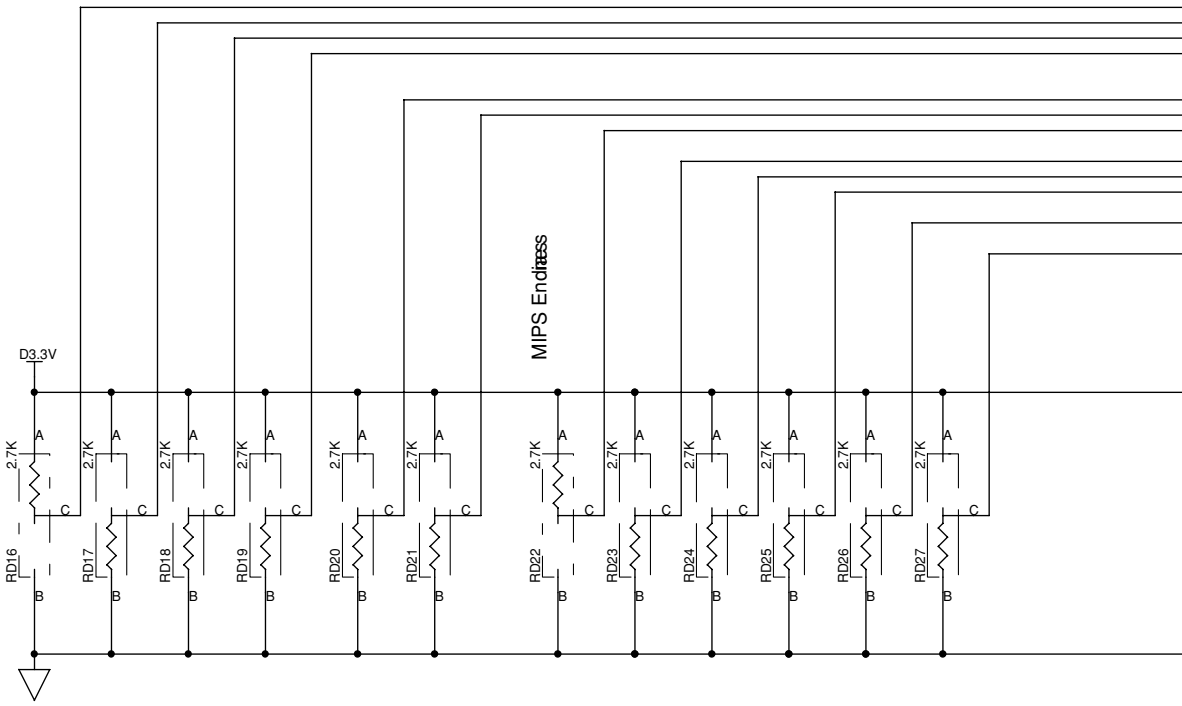
9.14 DTV MB ASSY (3/16)

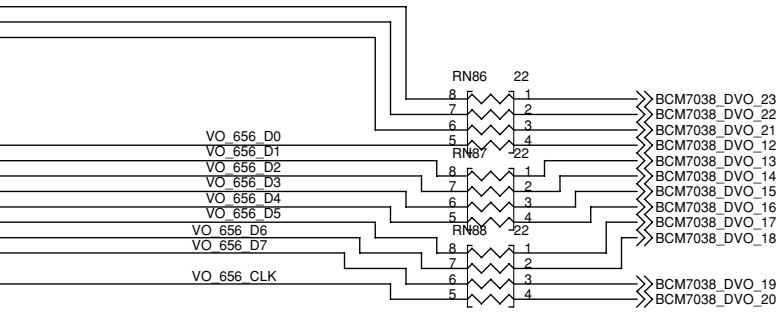
DTV MB ASSY (3/16)

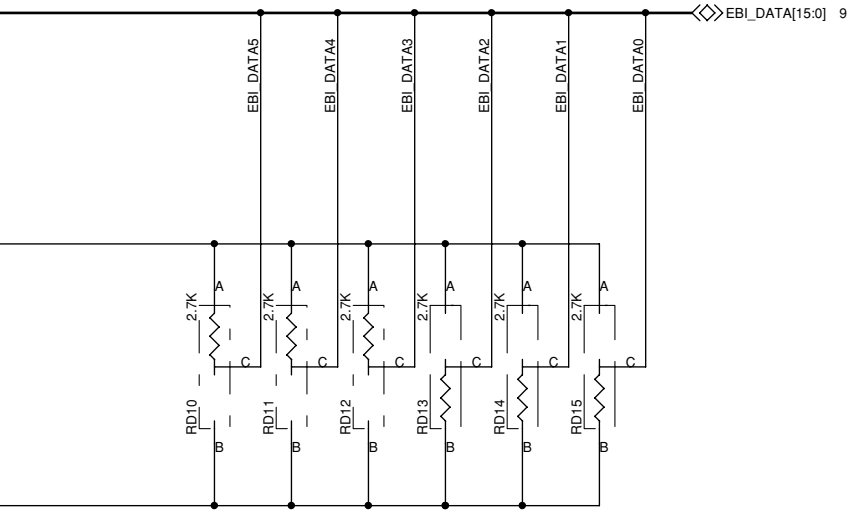
- DVO,.PIN_STRAPOPTION BLOCK

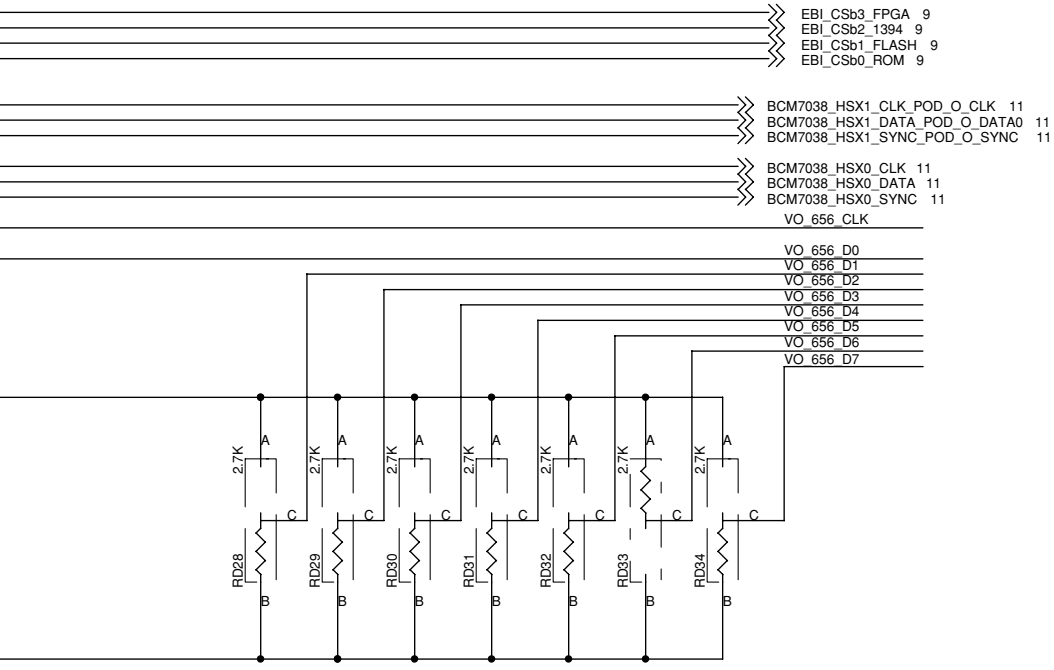







RN86 22
RN87 22
RN88 22
VO_656_D0
VO_656_D1
VO_656_D2
VO_656_D3
VO_656_D4
VO_656_D5
VO_656_D6
VO_656_D7
VO_656_CLK
BCM7038_DVO_23
BCM7038_DVO_22
BCM7038_DVO_21
BCM7038_DVO_12
BCM7038_DVO_13
BCM7038_DVO_14
BCM7038_DVO_15
BCM7038_DVO_16
BCM7038_DVO_17
BCM7038_DVO_18
BCM7038_DVO_19
BCM7038_DVO_20

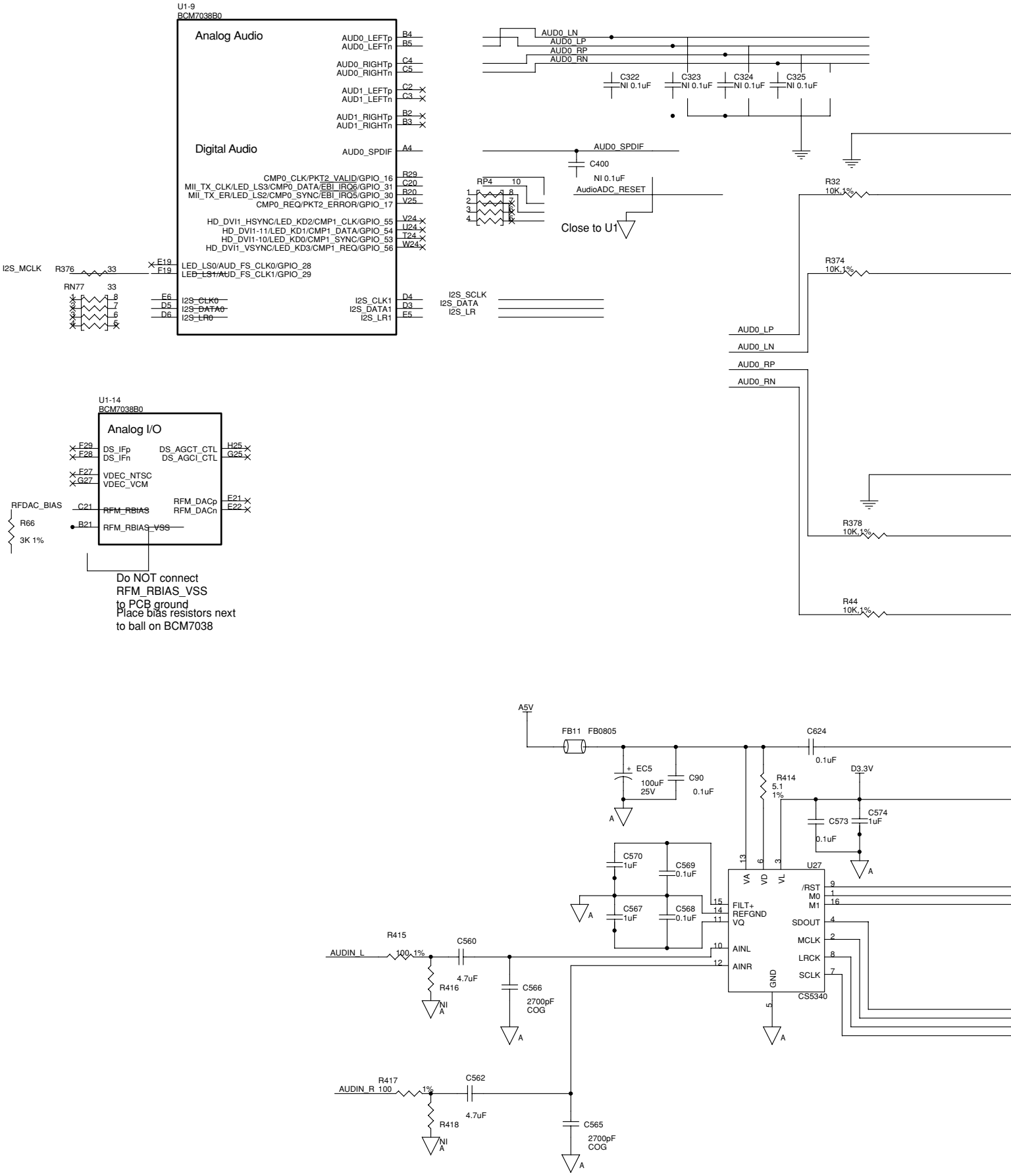

EBI_DATA[15:0] 9
EBI_DATA5
EBI_DATA4
EBI_DATA3
EBI_DATA2
EBI_DATA1
EBI_DATA0
2.7K
RD10
RD11
RD12
RD13
RD14
RD15

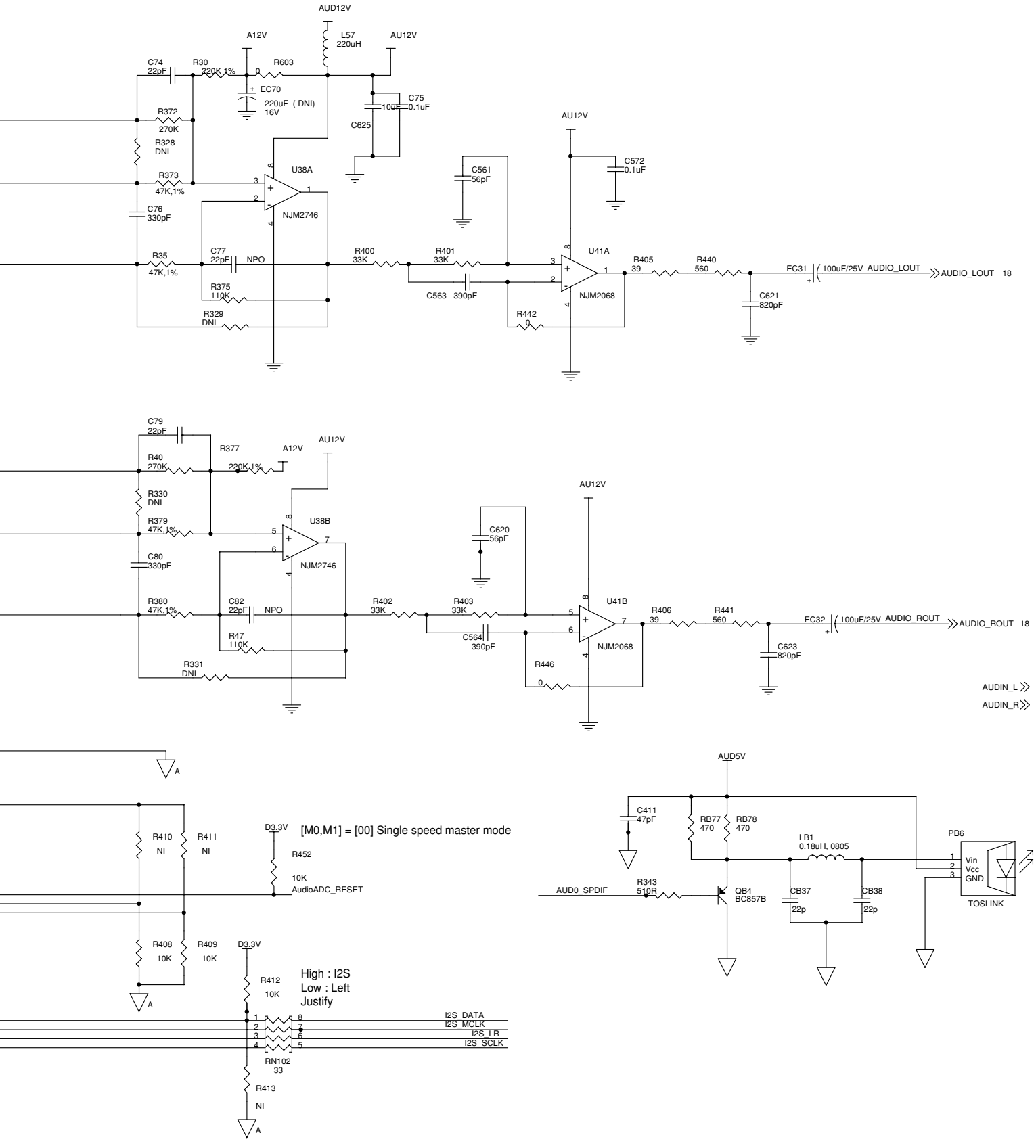

EBI_CSb3_FPGA 9
EBI_CSb2_1394 9
EBI_CSb1_FLASH 9
EBI_CSb0_ROM 9
BCM7038_HSX1_CLK_POD_O_CLK 11
BCM7038_HSX1_DATA_POD_O_DATA0 11
BCM7038_HSX1_SYNC_POD_O_SYNC 11
BCM7038_HSX0_CLK 11
BCM7038_HSX0_DATA 11
BCM7038_HSX0_SYNC 11
VO_656_CLK
VO_656_D0
VO_656_D1
VO_656_D2
VO_656_D3
VO_656_D4
VO_656_D5
VO_656_D6
VO_656_D7
2.7K
RD28
RD29
RD30
RD31
RD32
RD33
RD34

9.15 DTV MB ASSY (4/16)

DTV MB ASSY (4/16)

- AUDIO Buffer BLOCK

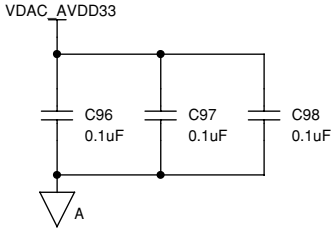



AUD12V
A12V
L57
220uH
AU12V
C74
22pF
R30
220K,1%
R603
EC70
220uF (DNI)
16V
C75
0.1uF
10uF
C625
R372
270K
R328
DNI
U38A
NJM2746
C561
56pF
AU12V
C572
0.1uF
R373
47K,1%
C76
330pF
R35
47K,1%
C77
22pF
NPO
R400
33K
R401
33K
U41A
NJM2068
R405
39
R440
560
EC31
100uF/25V
AUDIO_LOUT
AUDIO_LOUT 18
C621
820pF
C563
390pF
R375
110K
R329
DNI
R442
0
C79
22pF
R377
A12V
AU12V
R40
270K
220K,1%
R330
DNI
R379
47K,1%
U38B
NJM2746
C620
56pF
AU12V
C80
330pF
R380
47K,1%
C82
22pF
NPO
R402
33K
R403
33K
U41B
NJM2068
R406
39
R441
560
EC32
100uF/25V
AUDIO_ROUT
AUDIO_ROUT 18
C623
820pF
C564
390pF
R47
110K
R331
DNI
R446
0
AUDIN_L
AUDIN_R
A
R410
NI
R411
NI
D3.3V
[M0,M1] = [00] Single speed master mode
R452
10K
AudioADC_RESET
R408
10K
R409
10K
D3.3V
R412
10K
High : I2S
Low : Left
Justify
I2S_DATA
I2S_MCLK
I2S_LR
I2S_SCLK
RN102
33
R413
NI
A
AUD5V
C411
47pF
RB77
470
RB78
470
LB1
0.18uH, 0805
PB6
Vin
Vcc
GND
TOSLINK
AUD0_SPDIF
R343
510R
QB4
BC857B
CB37
22p
CB38
22p

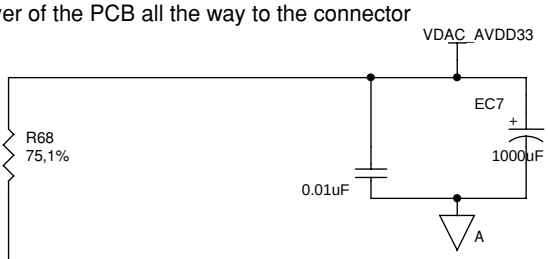
9.16 DTV MB ASSY (5/16)

DTV MB ASSY (5/16)

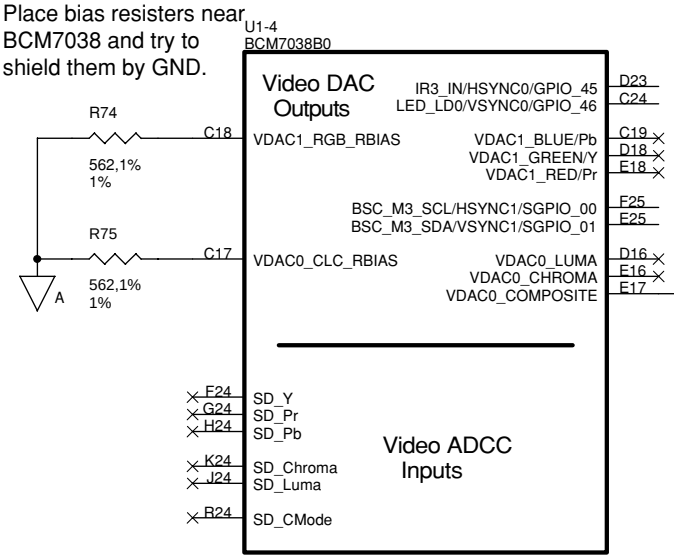
- Video DAC output BLOCK

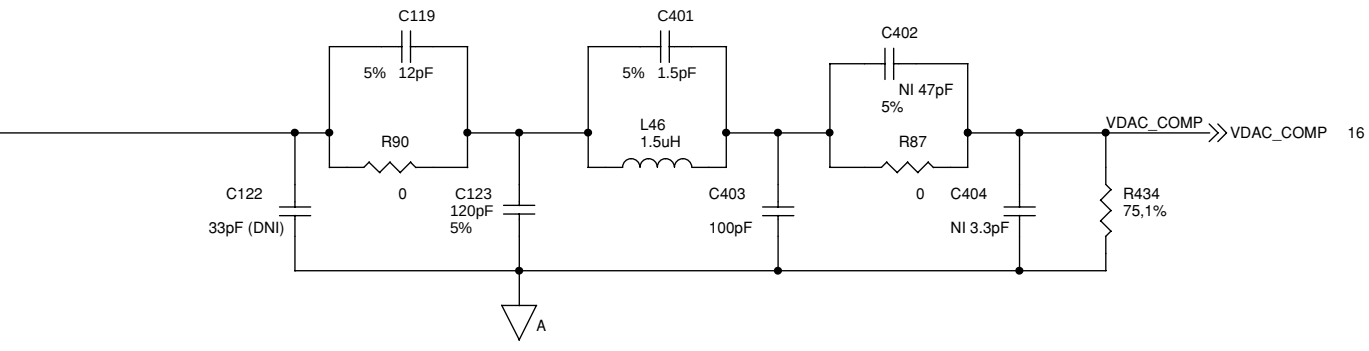


Route VDAC_AVDD33 as a wide trace or fill area on the top layer of the PCB all the way to the connector



Place bias resisters near BCM7038 and try to shield them by GND.

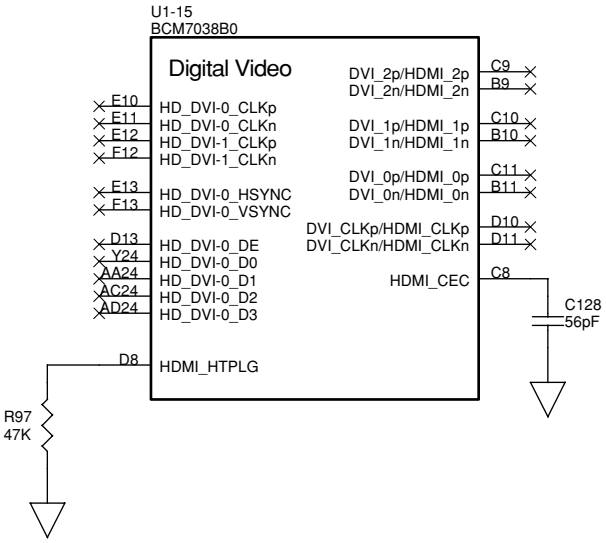


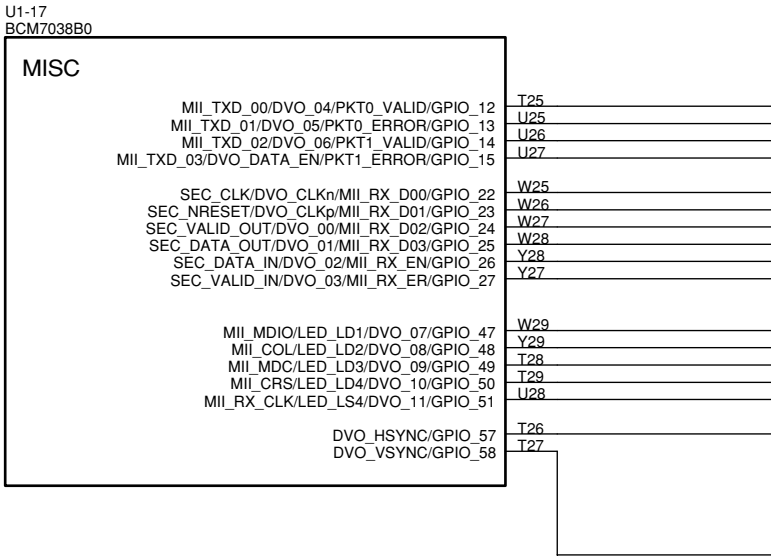

C119
5% 12pF
R90
0
C401
5% 1.5pF
L46
1.5uH
C402
NI 47pF
5%
R87
0
VDAC_COMP
VDAC_COMP 16
C122
33pF (DNI)
C123
120pF
5%
C403
100pF
C404
NI 3.3pF
R434
75,1%
A

9.17 DTV MB ASSY (6/16)

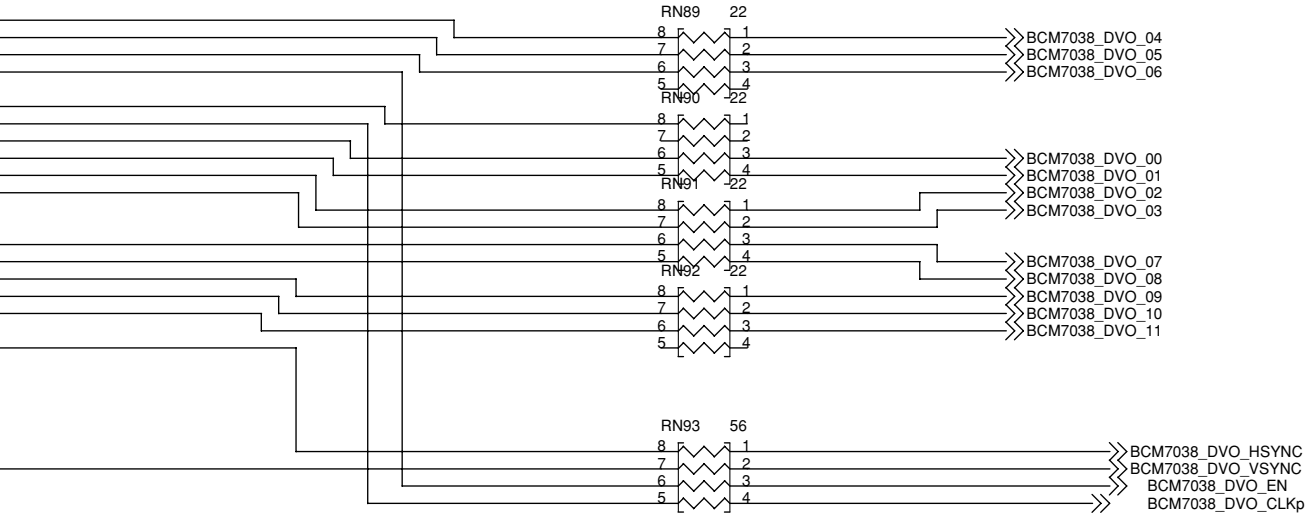
DTV MB ASSY (6/16)

• DVO BLOCK





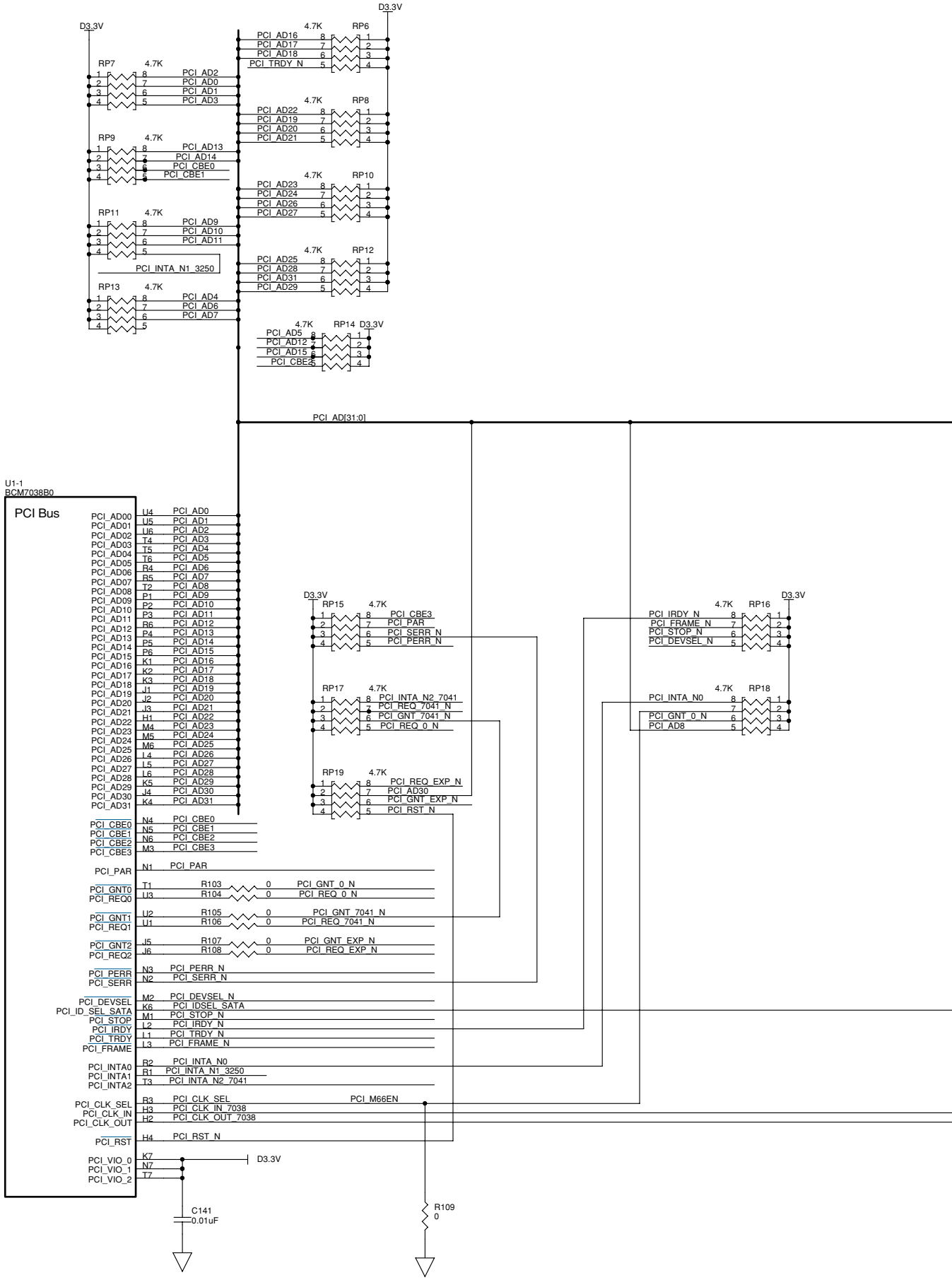
Place series resistors close to U1

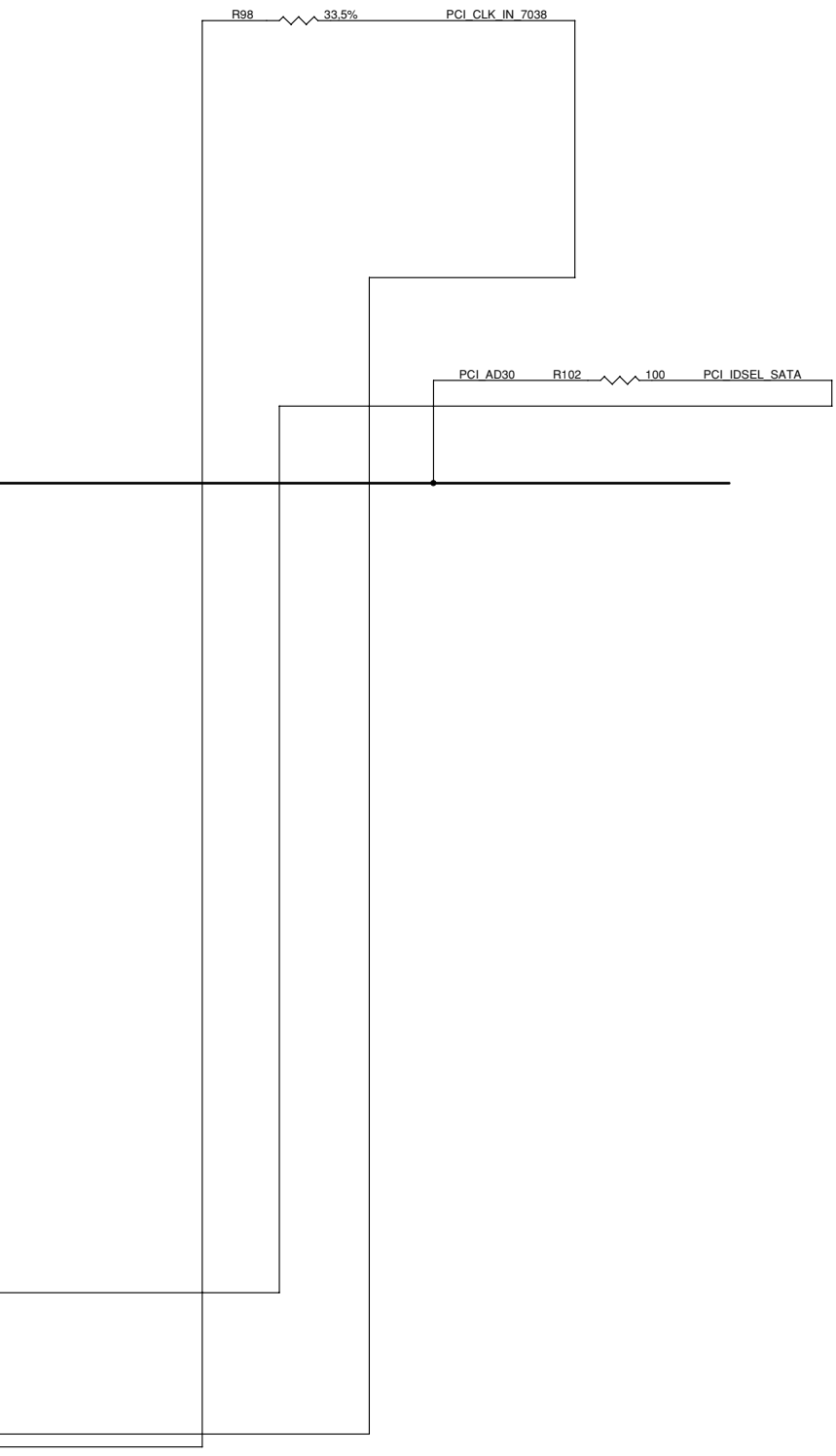


9.18 DTV MB ASSY (7/16)

DTV MB ASSY (7/16)

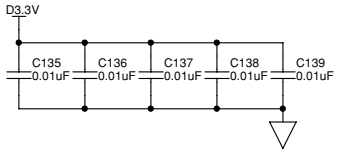
• PCI BLOCK





Place one of each of these

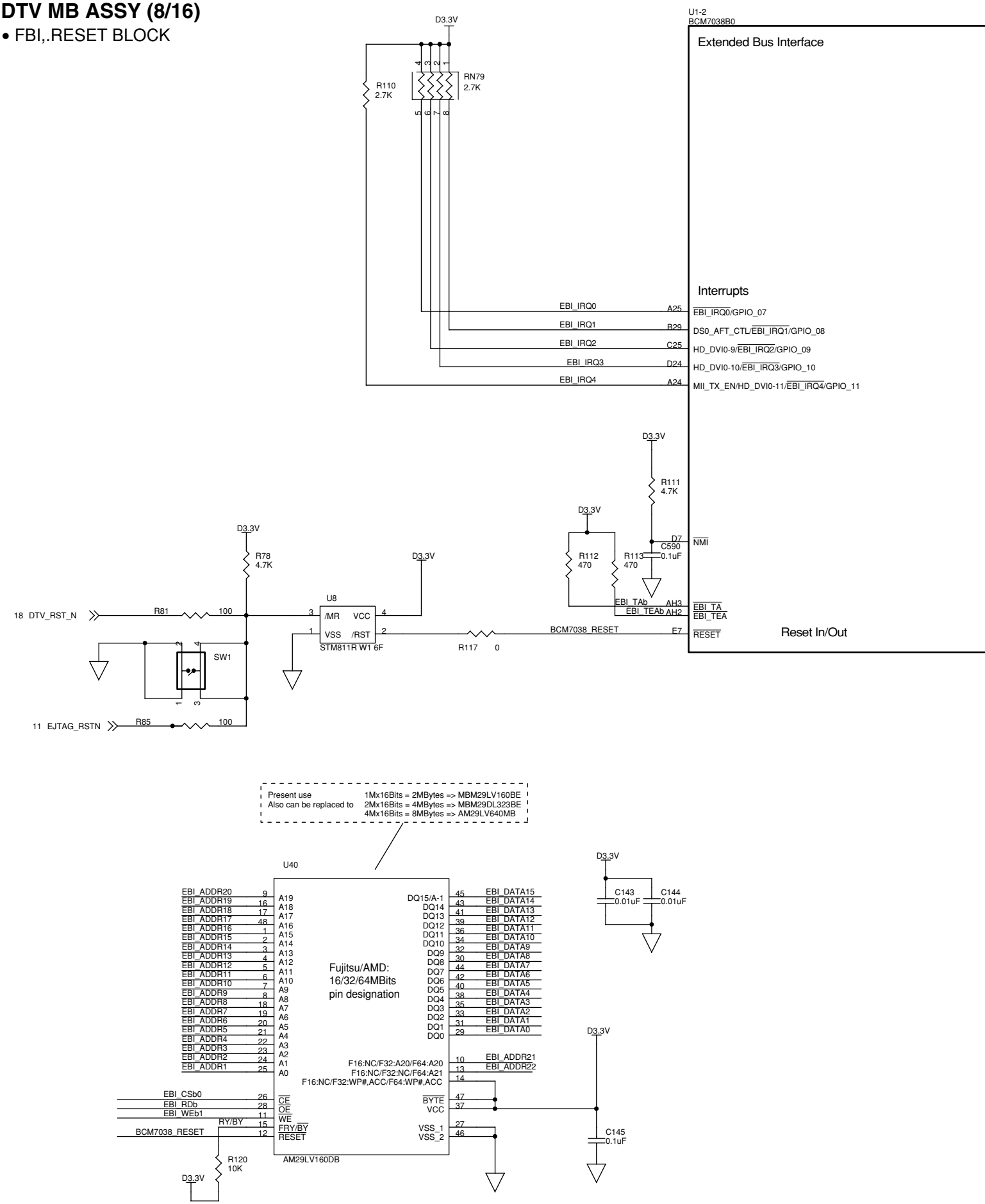
the VI/O pins: B19, B59,
A59, A16, and A10

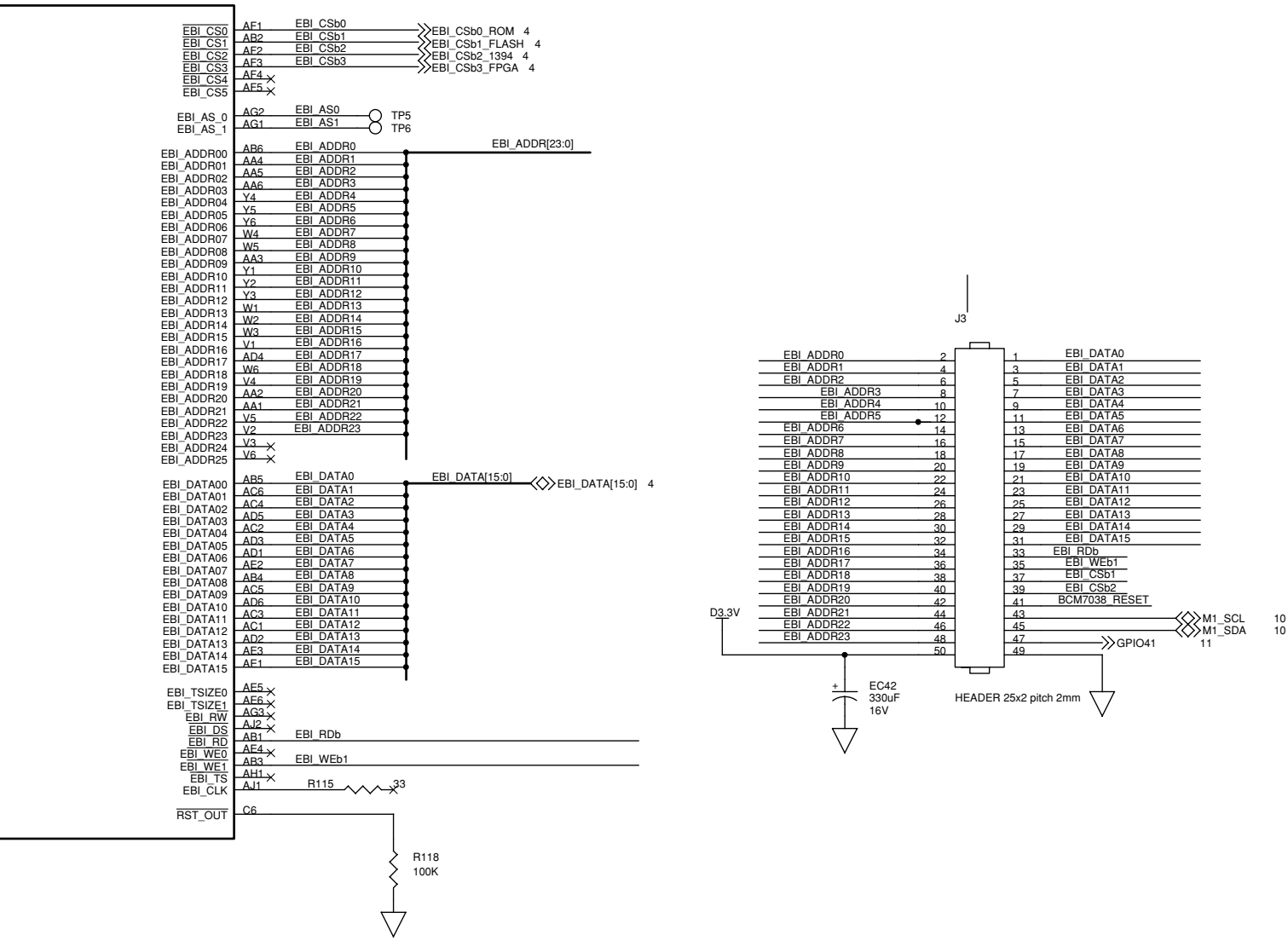


9.19 DTV MB ASSY (8/16)

DTV MB ASSY (8/16)

• FBI,.RESET BLOCK

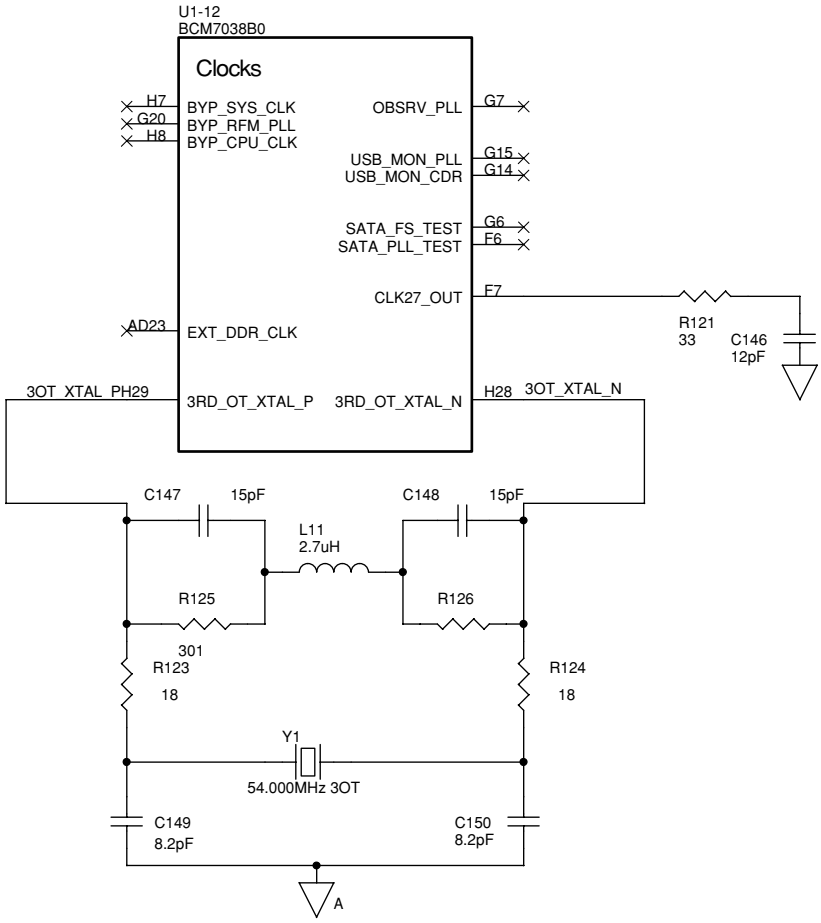


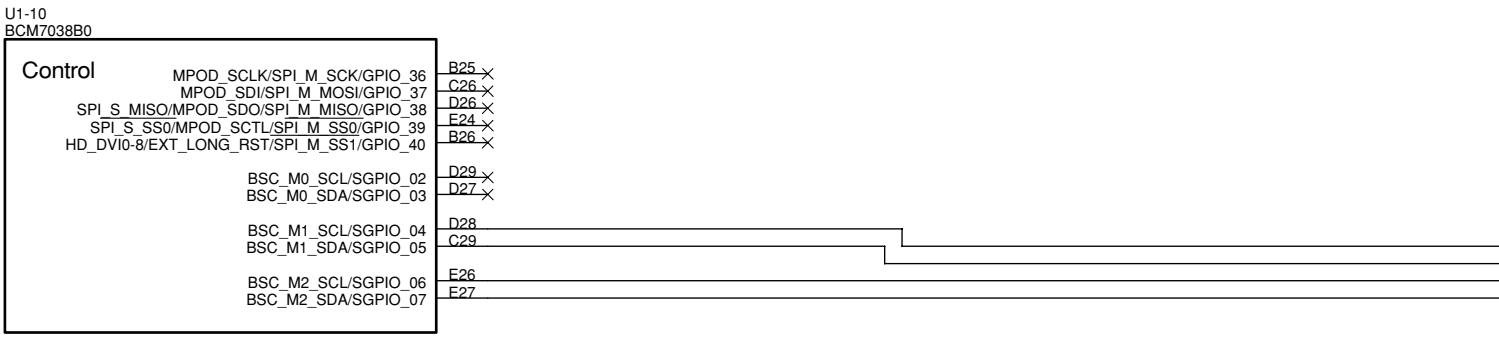

EBI_CS0
EBI_CS1
EBI_CS2
EBI_CS3
EBI_CS4
EBI_CS5
EBI_CSb0
EBI_CSb1
EBI_CSb2
EBI_CSb3
EBI_CSb0_ROM 4
EBI_CSb1_FLASH 4
EBI_CSb2_1394 4
EBI_CSb3_FPGA 4
EBI_AS_0
EBI_AS_1
EBI_AS0
EBI_AS1
TP5
TP6
EBI_ADDR[23:0]
EBI_ADDR00
EBI_ADDR01
EBI_ADDR02
EBI_ADDR03
EBI_ADDR04
EBI_ADDR05
EBI_ADDR06
EBI_ADDR07
EBI_ADDR08
EBI_ADDR09
EBI_ADDR10
EBI_ADDR11
EBI_ADDR12
EBI_ADDR13
EBI_ADDR14
EBI_ADDR15
EBI_ADDR16
EBI_ADDR17
EBI_ADDR18
EBI_ADDR19
EBI_ADDR20
EBI_ADDR21
EBI_ADDR22
EBI_ADDR23
EBI_ADDR24
EBI_ADDR25
EBI_DATA[15:0]
EBI_DATA[15:0] 4
EBI_DATA00
EBI_DATA01
EBI_DATA02
EBI_DATA03
EBI_DATA04
EBI_DATA05
EBI_DATA06
EBI_DATA07
EBI_DATA08
EBI_DATA09
EBI_DATA10
EBI_DATA11
EBI_DATA12
EBI_DATA13
EBI_DATA14
EBI_DATA15
EBI_TSIZE0
EBI_TSIZE1
EBI_RW
EBI_DS
EBI_RD
EBI_WE0
EBI_WE1
EBI_TS
EBI_CLK
EBI_RDb
EBI_WEb1
R115
33
RST_OUT
C6
R118
100K
J3
D3.3V
EC42
330uF
16V
HEADER 25x2 pitch 2mm
BCM7038_RESET
M1_SCL
M1_SDA
GPIO41
10
10
11

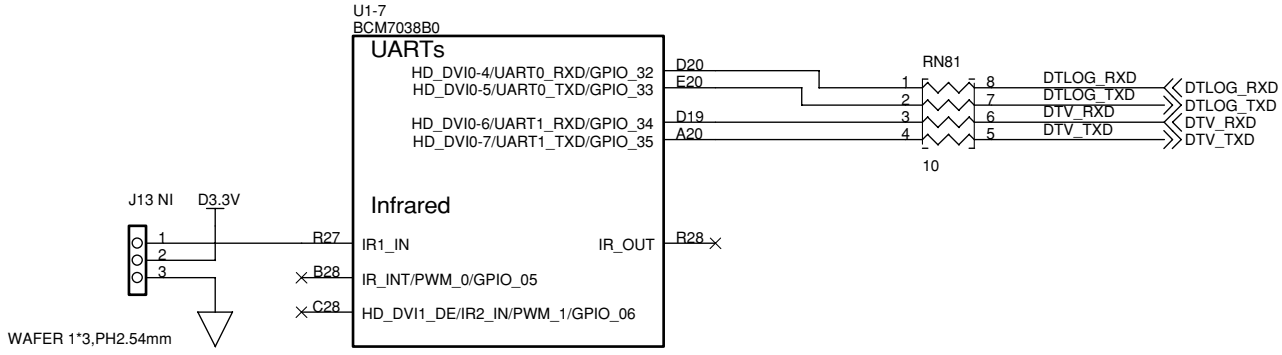
9.20 DTV MB ASSY (9/16)

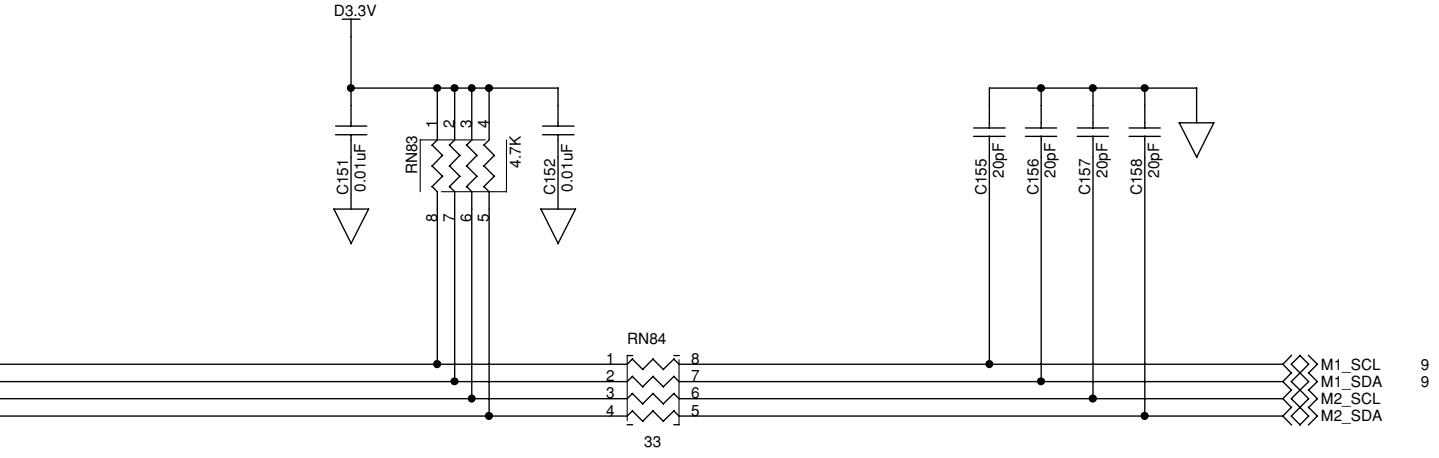
DTV MB ASSY (9/16)

• I2C,.UART,.CLK BLOCK

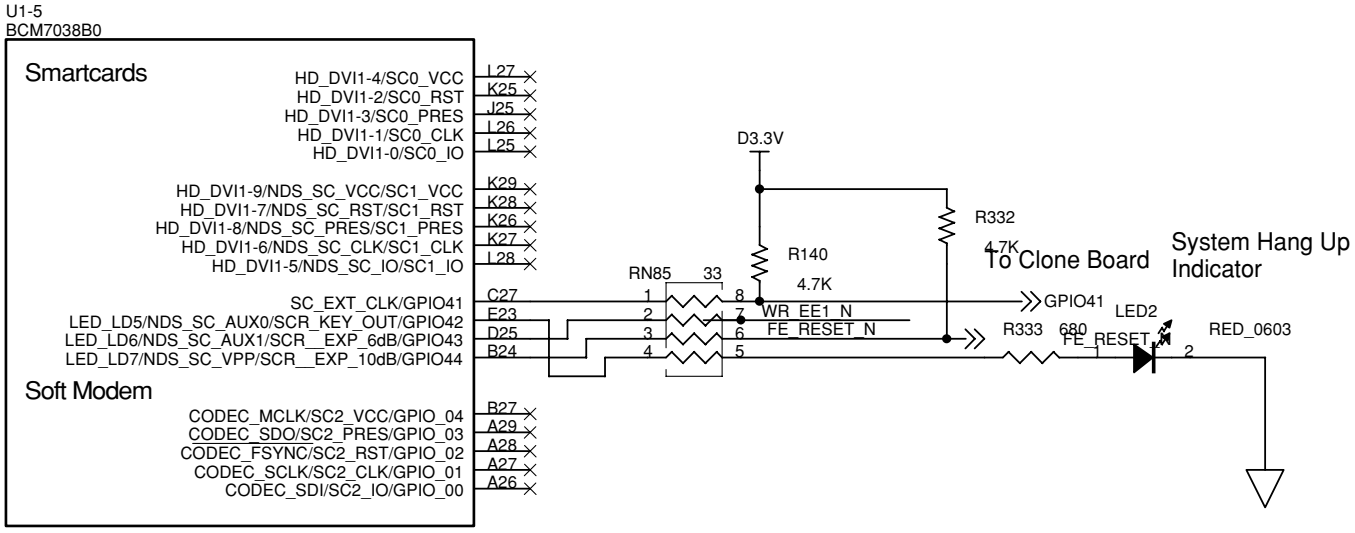


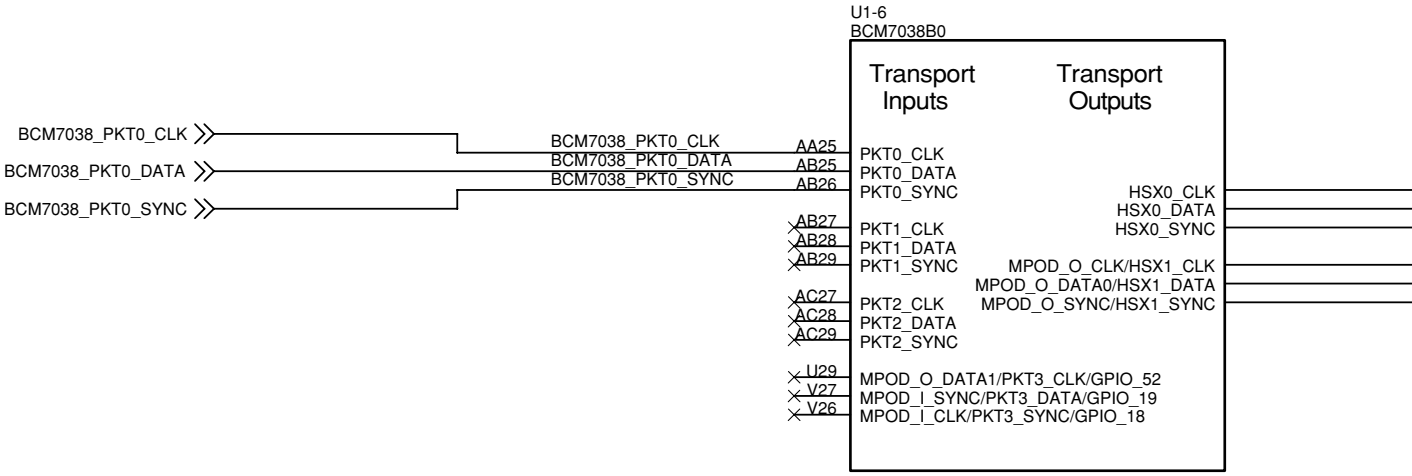


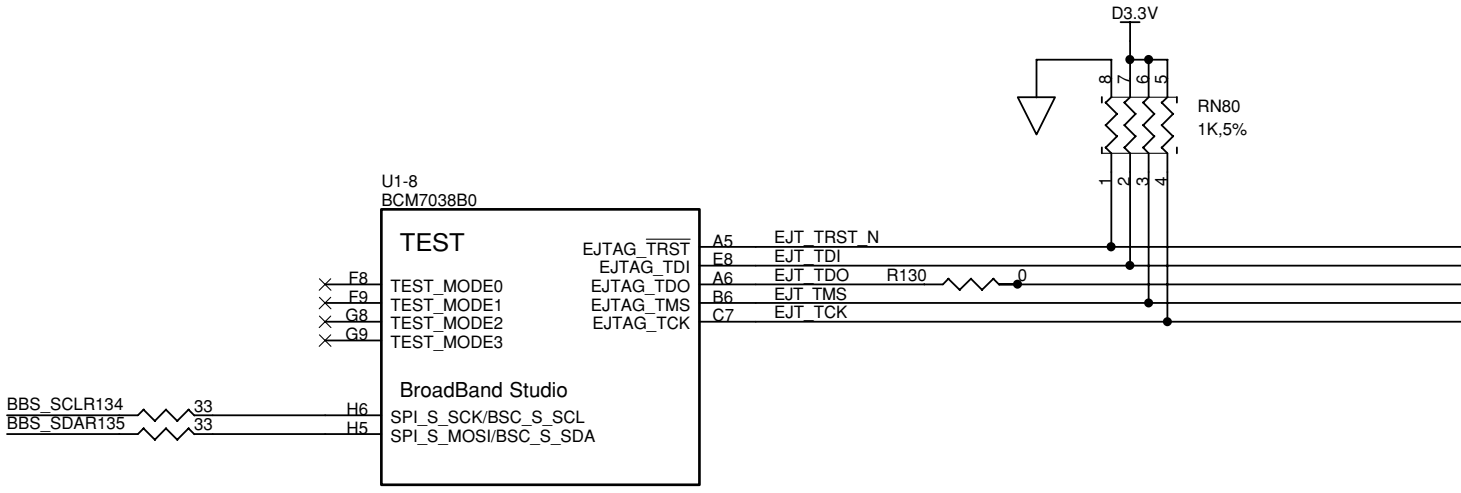

U1-7
BCM7038B0
UARTs
HD_DVI0-4/UART0_RXD/GPIO_32
HD_DVI0-5/UART0_TXD/GPIO_33
HD_DVI0-6/UART1_RXD/GPIO_34
HD_DVI0-7/UART1_TXD/GPIO_35
D20
E20
D19
A20
RN81
10
DTLOG_RXD
DTLOG_TXD
DTV_RXD
DTV_TXD
Infrared
IR1_IN
IR_OUT
IR_INT/PWM_0/GPIO_05
HD_DVI1_DE/IR2_IN/PWM_1/GPIO_06
R27
R28
B28
C28
J13 NI
D3.3V
WAFER 1*3,PH2.54mm


D3.3V
C151
0.01uF
RN83
4.7K
C152
0.01uF
C155
20pF
C156
20pF
C157
20pF
C158
20pF
RN84
33
M1_SCL
M1_SDA
M2_SCL
M2_SDA

9.21 DTV MB ASSY (10/16)

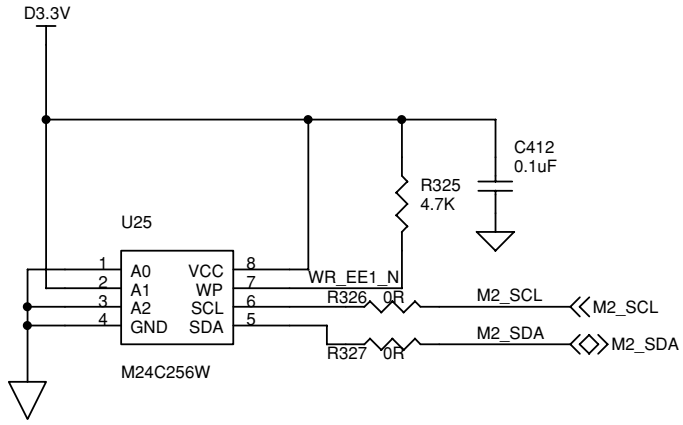


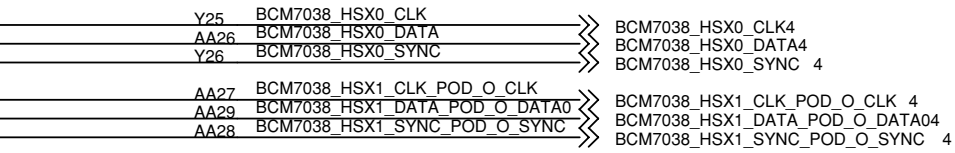


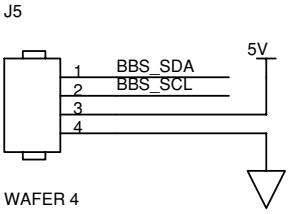


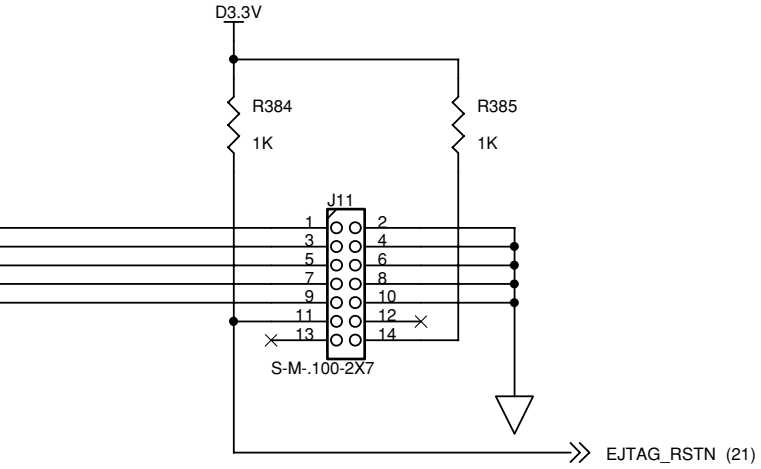
DTV MB ASSY (10/16)

• EJTAG,.TS,.EEPROMBLOCK







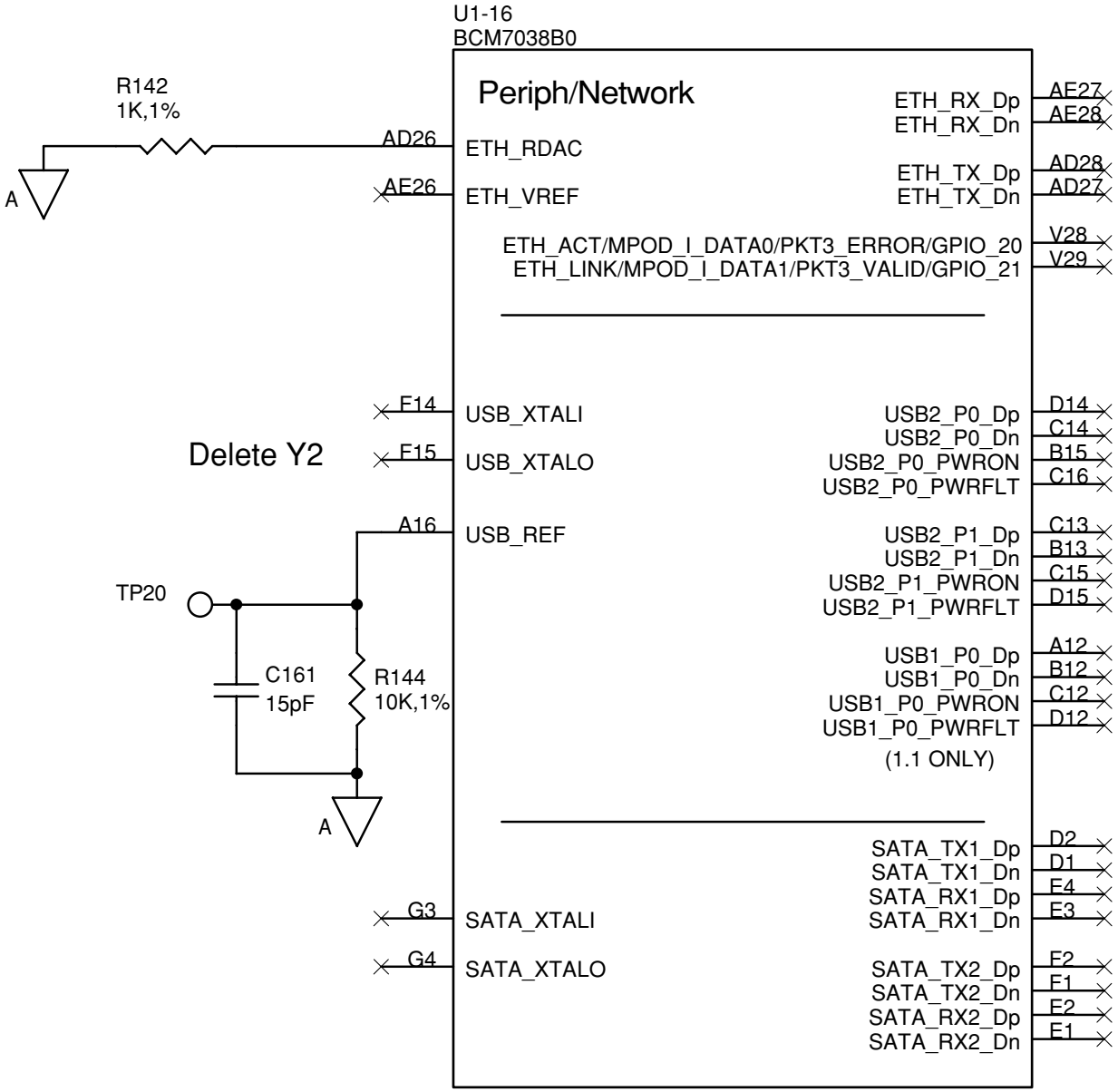


9.22 DTV MB ASSY (11/16)

DTV MB ASSY (11/16)

- USB;Ethernet;Sata BLOCK

Route TXP/M and RXP/M pairs differentially, matched short lengths, with 100 ohm differential impedance, adjacent to ground plane.



Stitch GND around
XTAL and caps inside
GND layer cutout

A

SATA & USB - Layout Guidelines & Notes

1. The Dp and Dn traces are length matched, with max differential skew, within 20mils
2. Differential trace length must be less than 5 inches
3. No more than 2 vias per trace, prefer zero.
4. Never split the ground plane under differential pair routing
5. Route differential pairs above the GND plane.
6. Differential impedance is 100 Ohms for SATA and 90 ohms for USB.
7. Adjacent differential pairs should be separated by at least 3 times the trace width. (e.g. 7.5 mil trace, leave >22.5mils between adjacent diff pairs)
8. Stich gnd vias around each differential pair, but NOT between a given pair.
9. SATA xtal +/- 50 ppm Tolerance +/- 100 ppm Stability

B

C

D

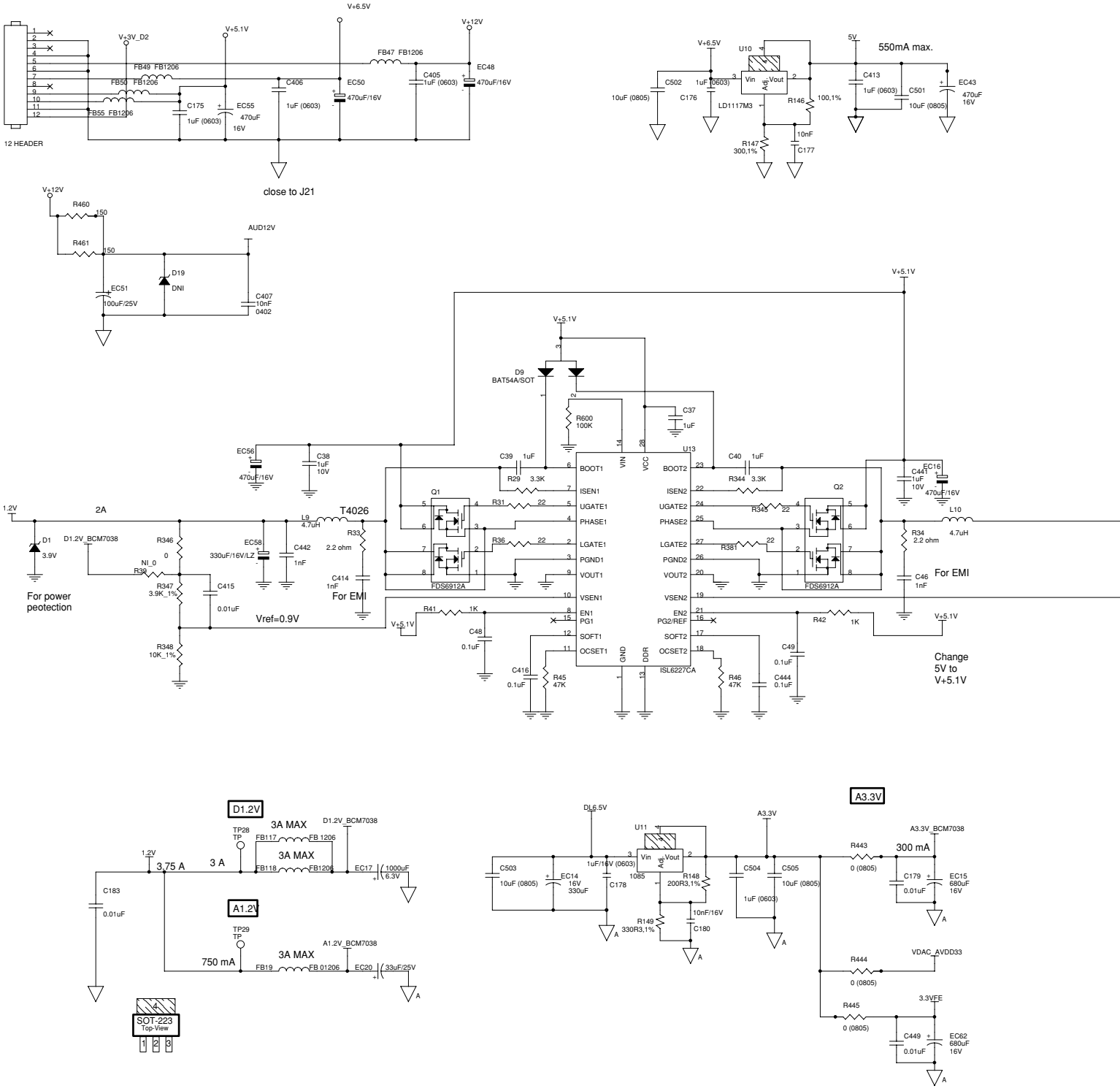
E

F

9.23 DTV MB ASSY (12/16)

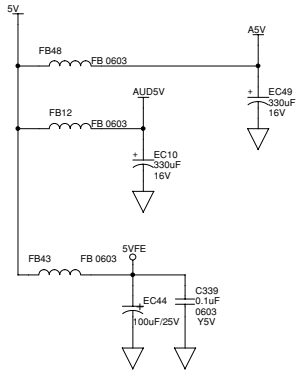
DTV MB ASSY (12/16)

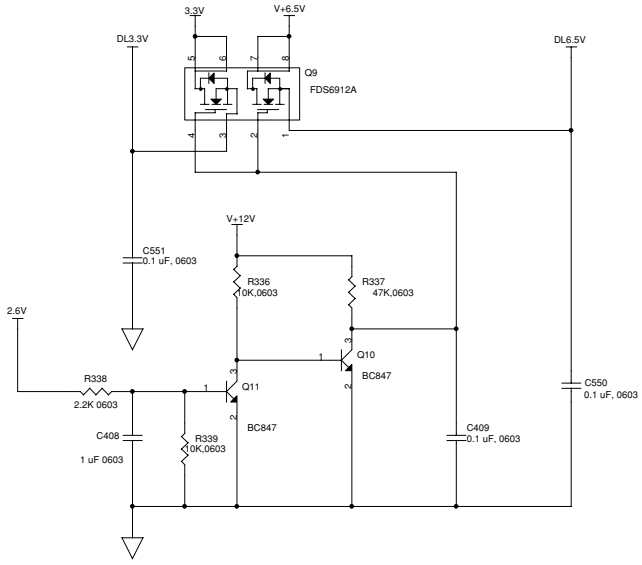
• POWER BLOCK

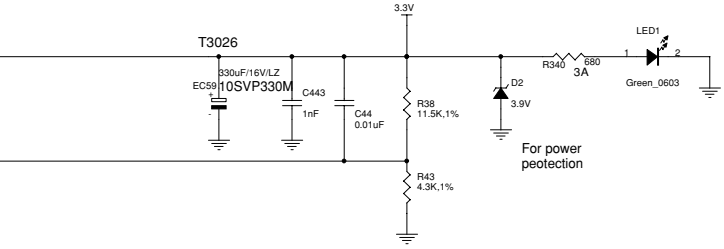


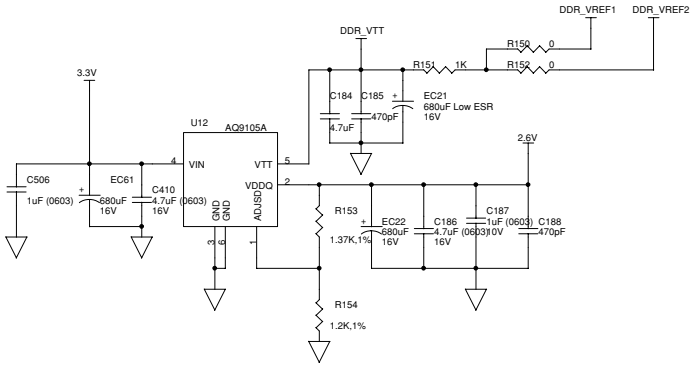
R448 0 (0805)
R449 0 (0805) DNI
R450 0 (0805)
R451 0 (0805) DNI

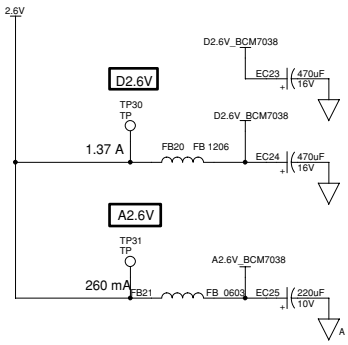
DDR Screw hole isolate to DGN add 4 Resistor to DGN.

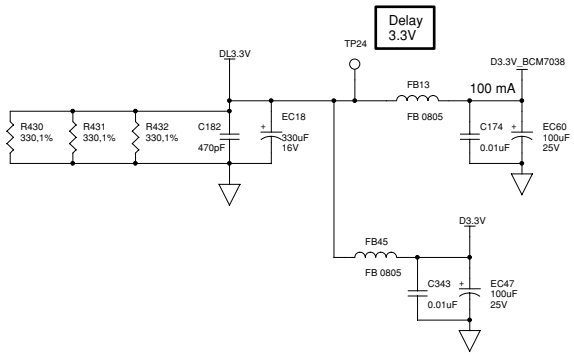

5V
FB48
FB 0603
A5V
EC49
330uF
16V
AUD5V
FB12
FB 0603
EC10
330uF
16V
FB43
FB 0603
5VFE
EC44
100uF/25V
C339
0.1uF
0603
Y5V


3.3V
V+6.5V
DL3.3V
DL6.5V
Q9
FDS6912A
V+12V
C551
0.1 uF, 0603
R336
0K,0603
R337
47K,0603
2.6V
Q10
BC847
R338
2.2K 0603
Q11
BC847
C550
0.1 uF, 0603
C408
1 uF 0603
R339
0K,0603
C409
0.1 uF, 0603


3.3V
T3026
330uF/16V/LZ
EC59
10SVP330M
C443
1nF
C44
0.01uF
R38
11.5K,1%
R43
4.3K,1%
D2
3.9V
For power
peotection
R340
680
3A
LED1
Green_0603


DDR_VREF1
DDR_VREF2
DDR_VTT
R150
0
R151
1K
R152
0
3.3V
C184
4.7uF
C185
470pF
EC21
680uF Low ESR
16V
U12
AQ9105A
2.6V
VIN
VTT
VDDQ
GND
GND
ADJSD
C506
1uF (0603)
EC61
680uF
16V
C410
4.7uF (0603)
16V
R153
1.37K,1%
EC22
680uF
16V
C186
4.7uF (0603)
16V
C187
1uF (0603)
C188
470pF
R154
1.2K,1%

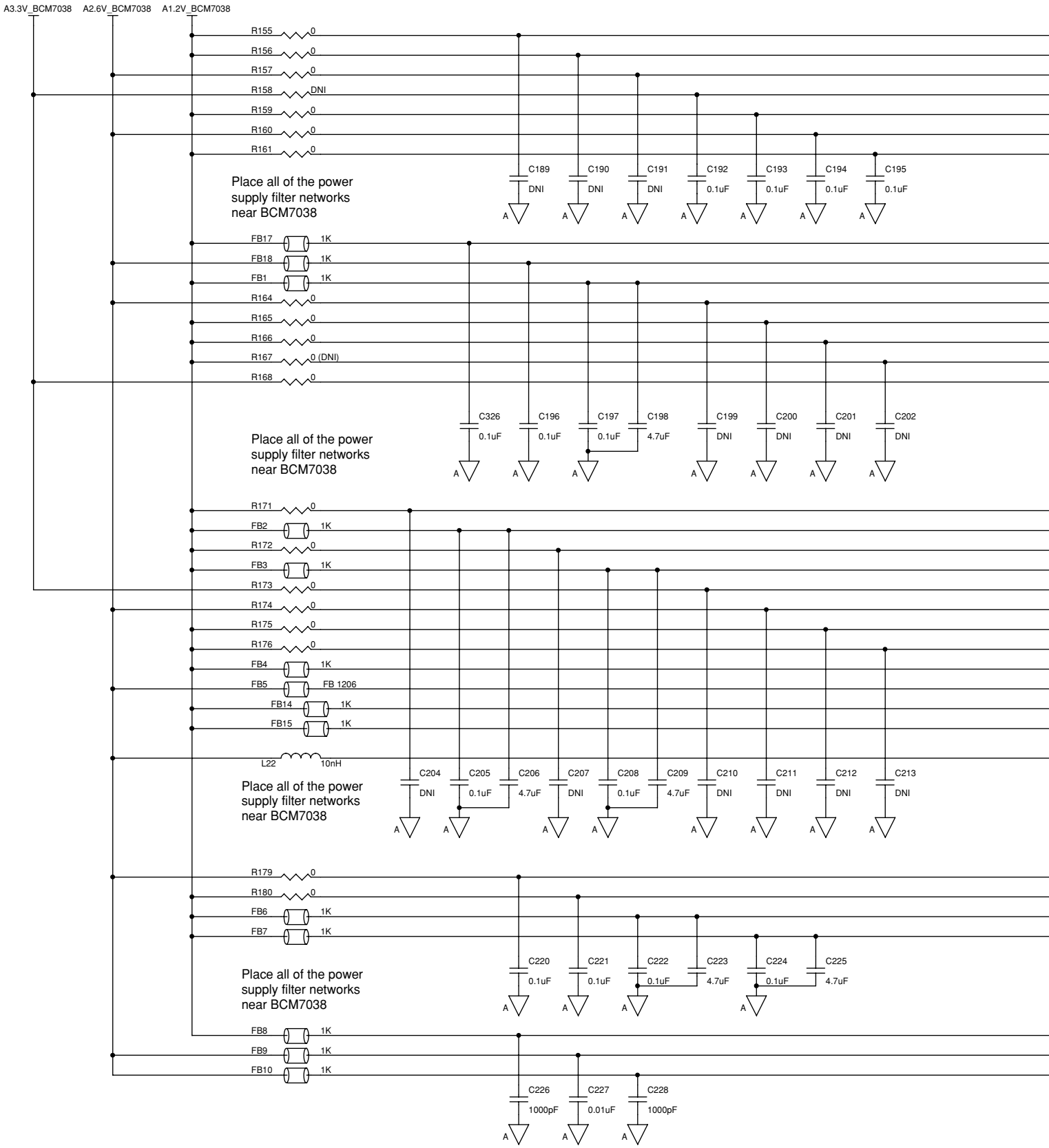

2.6V
D2.6V_BCM7038
D2.6V
EC23
470uF
16V
TP30
TP
D2.6V_BCM7038
1.37 A
FB20
FB 1206
EC24
470uF
16V
A2.6V
TP31
TP
A2.6V_BCM7038
260 mA
FB21
FB 0603
EC25
220uF
10V

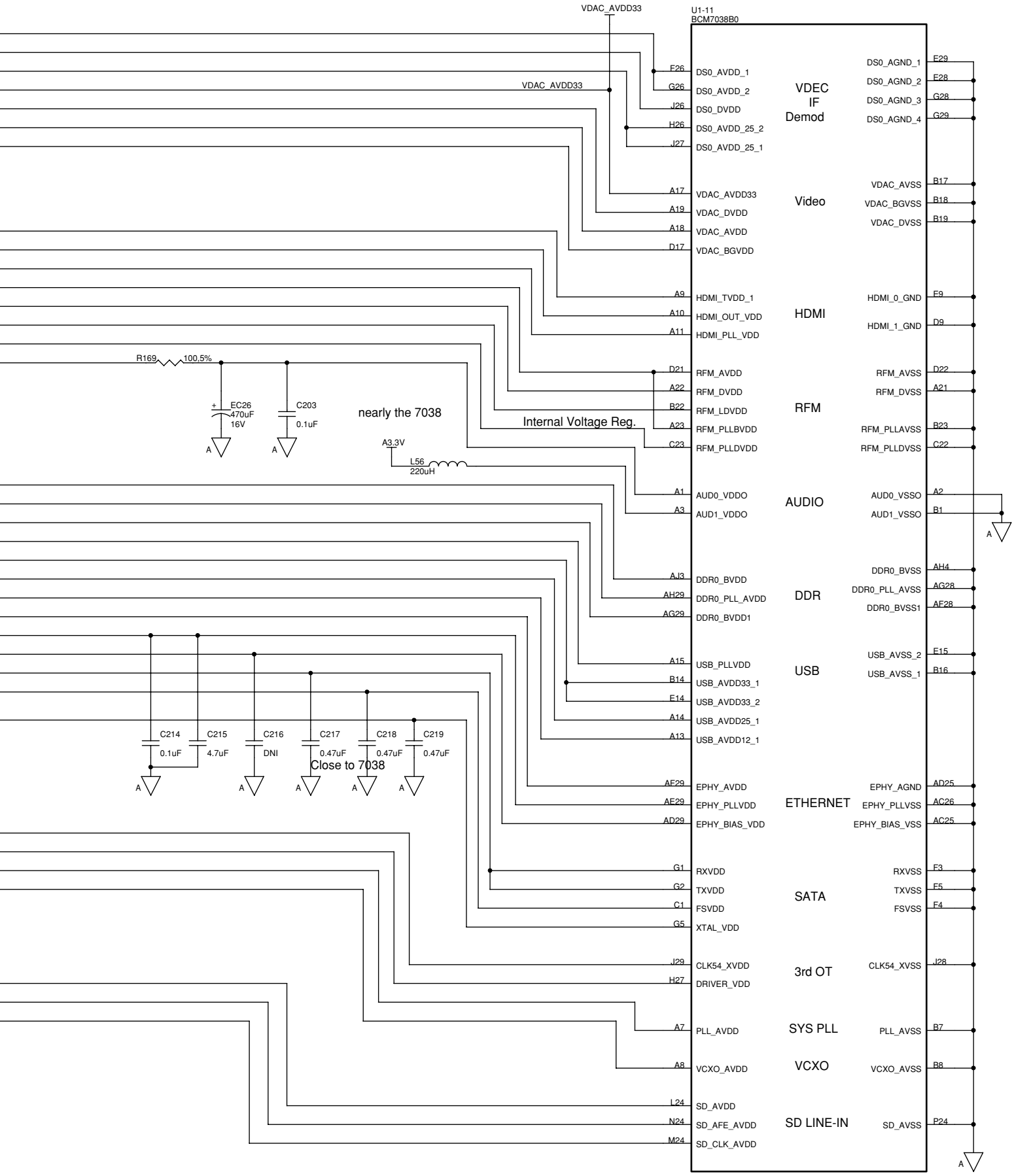

Delay
3.3V
TP24
DL3.3V
D3.3V_BCM7038
FB13
100 mA
FB 0805
R430
330,1%
R431
330,1%
R432
330,1%
C182
470pF
EC18
330uF
16V
C174
0.01uF
EC60
100uF
25V
D3.3V
FB45
FB 0805
C343
0.01uF
EC47
100uF
25V

9.24 DTV MB ASSY (13/16)

DTV MB ASSY (13/16)

• Analog Decoupling BLOCK

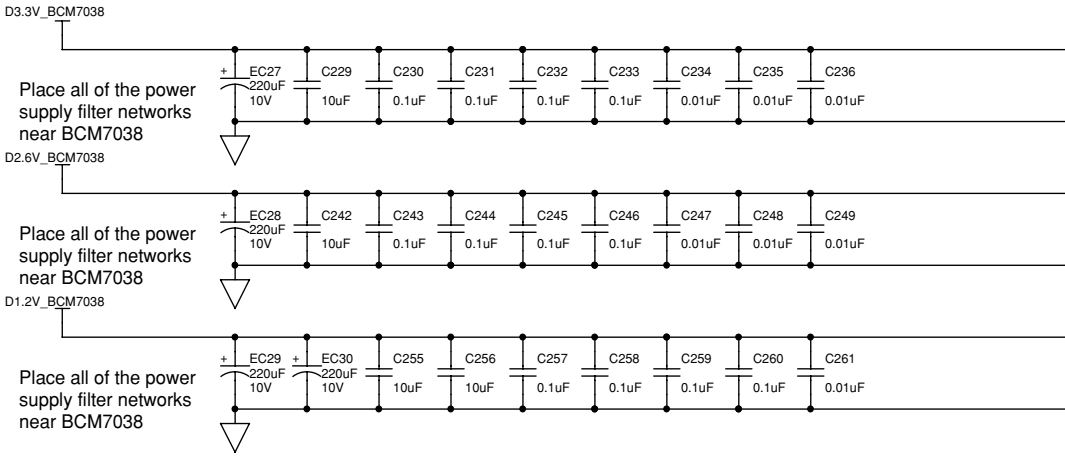


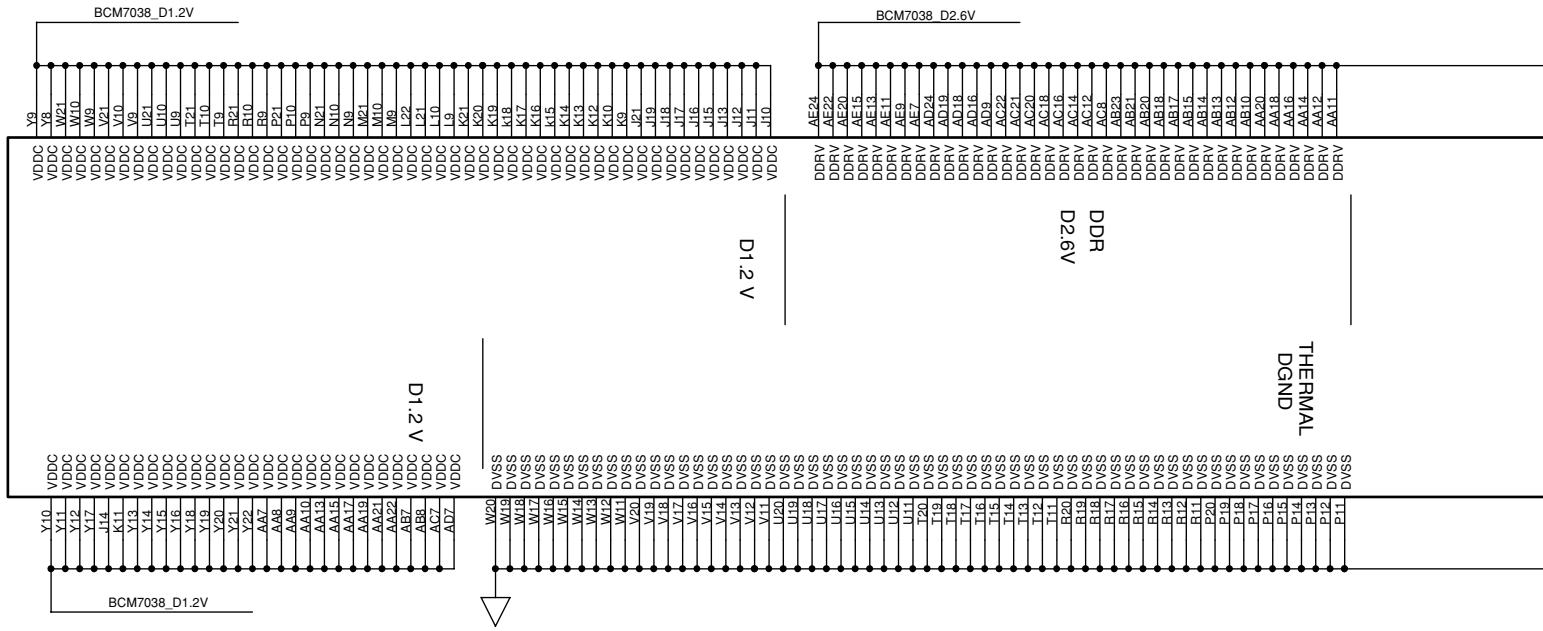

VDAC_AVDD33
U1-11
BCM7038B0
F26 DS0_AVDD_1
G26 DS0_AVDD_2
J26 DS0_DVDD
H26 DS0_AVDD_25_2
J27 DS0_AVDD_25_1
VDEC
IF
Demod
DS0_AGND_1 E29
DS0_AGND_2 E28
DS0_AGND_3 G28
DS0_AGND_4 G29
A17 VDAC_AVDD33
A19 VDAC_DVDD
A18 VDAC_AVDD
D17 VDAC_BGVDD
Video
VDAC_AVSS B17
VDAC_BGVSS B18
VDAC_DVSS B19
A9 HDMI_TVDD_1
A10 HDMI_OUT_VDD
A11 HDMI_PLL_VDD
HDMI
HDMI_0_GND E9
HDMI_1_GND D9
R169 100,5%
EC26 470uF 16V
C203 0.1uF
nearly the 7038
Internal Voltage Reg.
D21 RFM_AVDD
A22 RFM_DVDD
B22 RFM_LDVDD
A23 RFM_PLLBVDD
C23 RFM_PLLDVDD
RFM
RFM_AVSS D22
RFM_DVSS A21
RFM_PLLAVSS B23
RFM_PLLDVSS C22
A3.3V
L56 220uH
A1 AUD0_VDDO
A3 AUD1_VDDO
AUDIO
AUD0_VSSO A2
AUD1_VSSO B1
AJ3 DDR0_BVDD
AH29 DDR0_PLL_AVDD
AG29 DDR0_BVDD1
DDR
DDR0_BVSS AH4
DDR0_PLL_AVSS AG28
DDR0_BVSS1 AF28
C214 0.1uF
C215 4.7uF
C216 DNI
C217 0.47uF
C218 0.47uF
C219 0.47uF
Close to 7038
A15 USB_PLLVDD
B14 USB_AVDD33_1
E14 USB_AVDD33_2
A14 USB_AVDD25_1
A13 USB_AVDD12_1
USB
USB_AVSS_2 E15
USB_AVSS_1 B16
AF29 EPHY_AVDD
AE29 EPHY_PLLVDD
AD29 EPHY_BIAS_VDD
ETHERNET
EPHY_AGND AD25
EPHY_PLLVSS AC26
EPHY_BIAS_VSS AC25
G1 RXVDD
G2 TXVDD
C1 FSVDD
G5 XTAL_VDD
SATA
RXVSS F3
TXVSS F5
FSVSS F4
J29 CLK54_XVDD
H27 DRIVER_VDD
3rd OT
CLK54_XVSS J28
A7 PLL_AVDD
SYS PLL
PLL_AVSS B7
A8 VCXO_AVDD
VCXO
VCXO_AVSS B8
L24 SD_AVDD
N24 SD_AFE_AVDD
M24 SD_CLK_AVDD
SD LINE-IN
SD_AVSS P24
A

9.25 DTV MB ASSY (14/16)

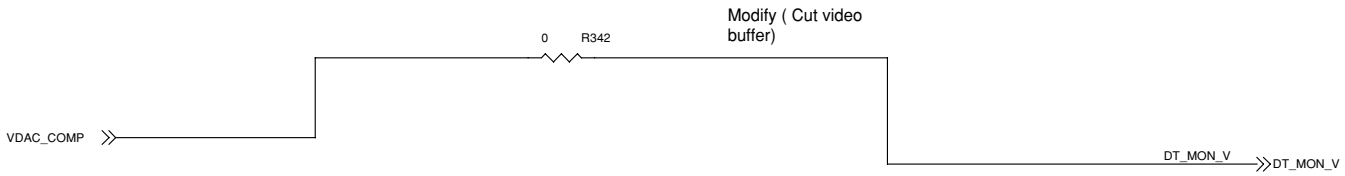
DTV MB ASSY (14/16)

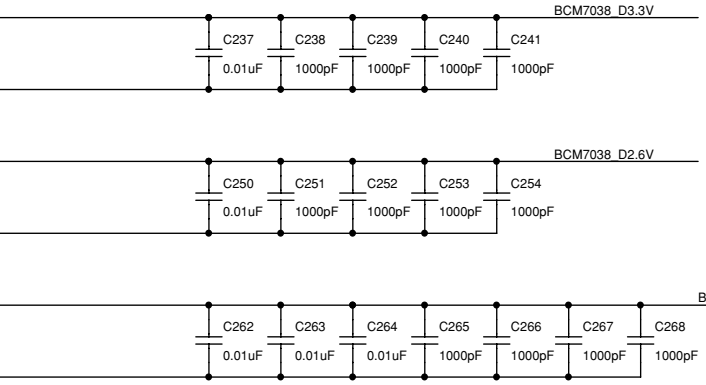
• Digital DecouplingBLOCK

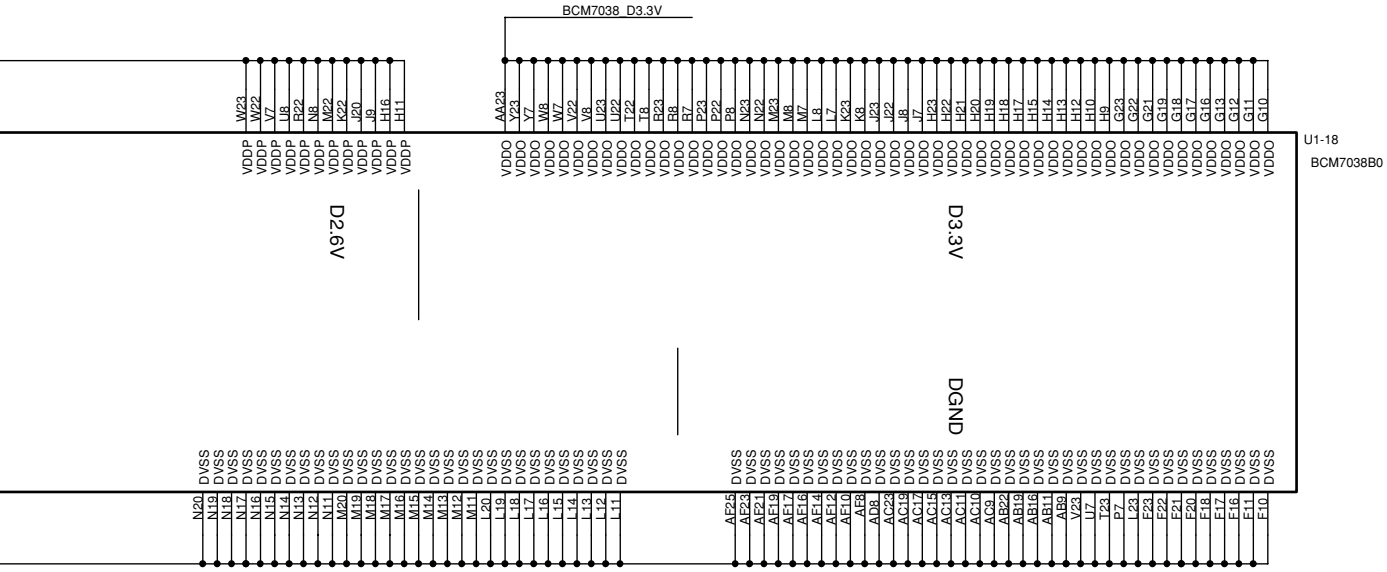




• Video Buffers BLOCK



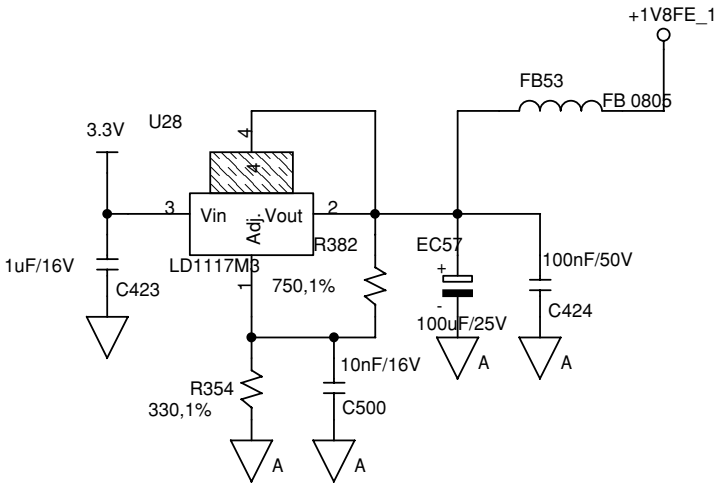

BCM7038_D3.3V
C237
0.01uF
C238
1000pF
C239
1000pF
C240
1000pF
C241
1000pF
BCM7038_D2.6V
C250
0.01uF
C251
1000pF
C252
1000pF
C253
1000pF
C254
1000pF
BCM7038_D1.2V
C262
0.01uF
C263
0.01uF
C264
0.01uF
C265
1000pF
C266
1000pF
C267
1000pF
C268
1000pF

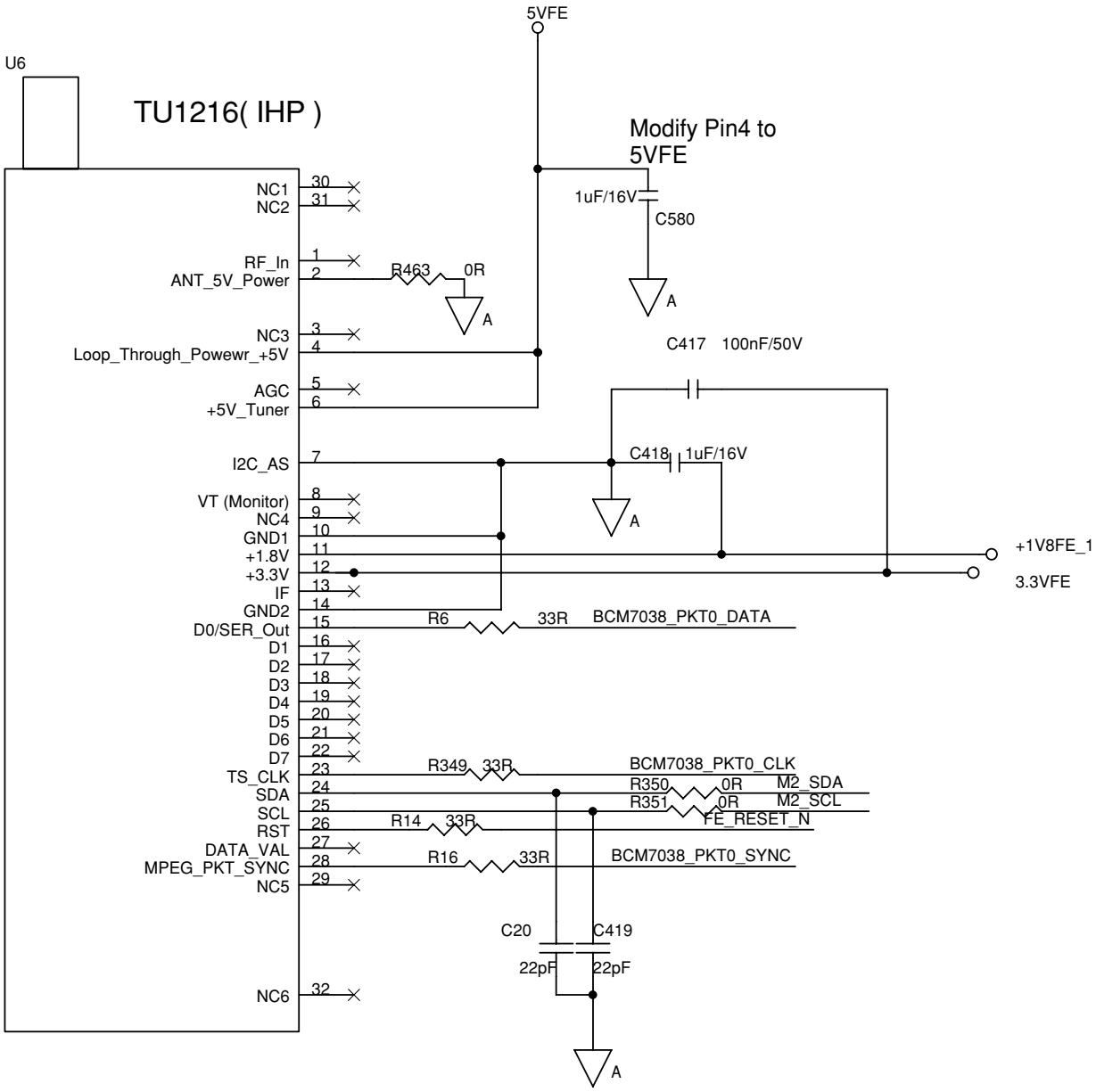

BCM7038_D3.3V
W23 W22 V7 U8 R22 N8 M22 K22 J20 J9 H16 H11
AA23 Y23 Y7 W8 W7 V22 V8 U23 U22 T22 T8 R23 R8 P7 P23 P22 P8 N23 N22 M23 M8 M7 L8 L7 K23 K8 J23 J22 J8 J7 H23 H22 H21 H20 H19 H18 H17 H15 H14 H13 H12 H10 H9 G23 G22 G21 G19 G18 G17 G16 G13 G12 G11 G10
VDDP
VDDO
U1-18
BCM7038B0
D2.6V
D3.3V
DGND
DVSS
N20 N19 N18 N17 N16 N15 N14 N13 N12 N11 M20 M19 M18 M17 M16 M15 M14 M13 M12 M11 L20 L19 L18 L17 L16 L15 L14 L13 L12 L11
AF25 AF23 AF21 AF19 AE17 AE16 AE14 AE12 AE10 AE8 AD8 AC23 AC19 AC17 AC15 AC13 AC11 AC10 AC9 AB22 AB19 AB16 AB11 AB9 V23 U7 T23 P7 L23 F23 F22 F21 F20 F18 F17 F16 F11 F10

9.26 DTV MB ASSY (15/16)

DTV MB ASSY (15/16)

- Front End BLOCK

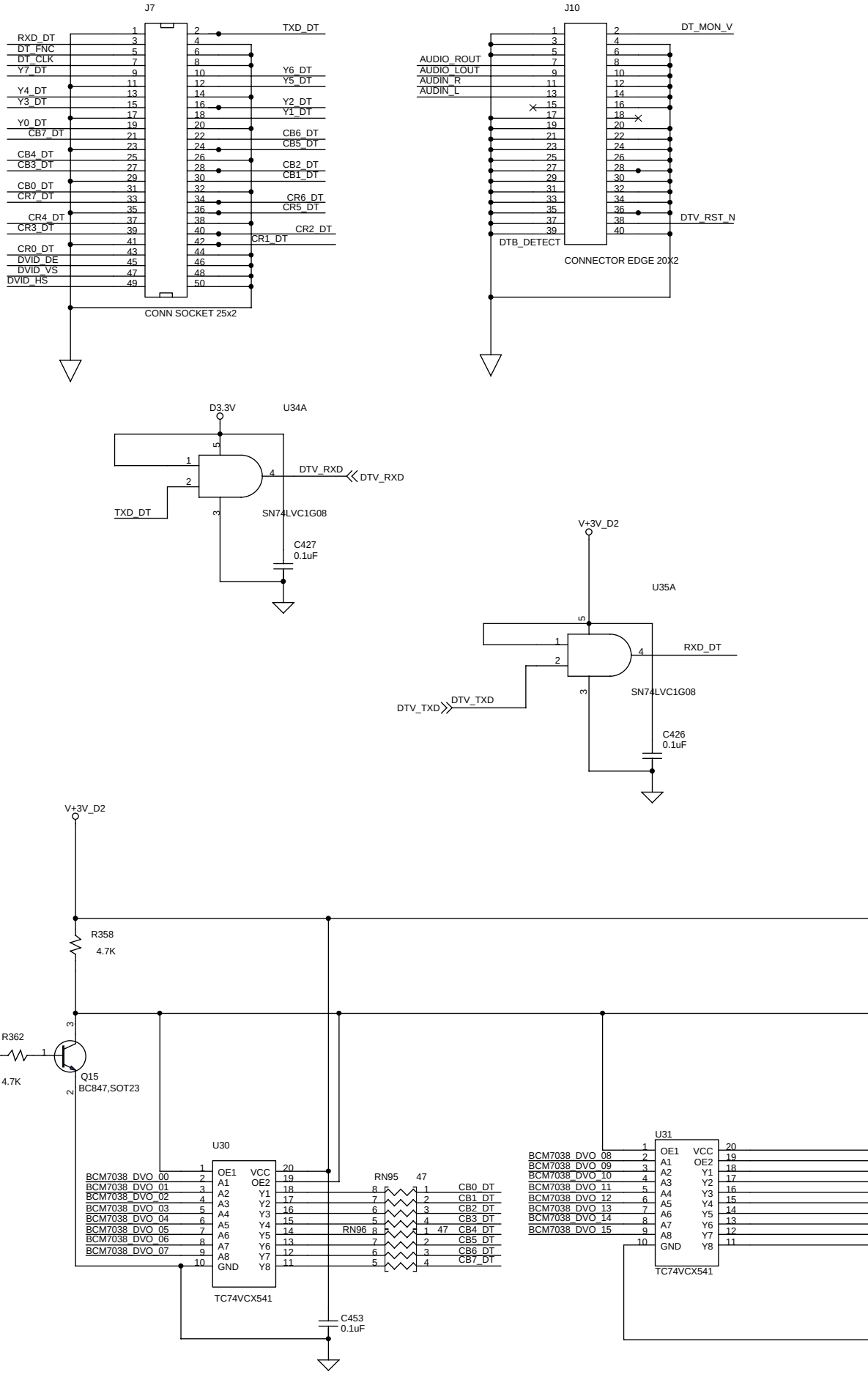


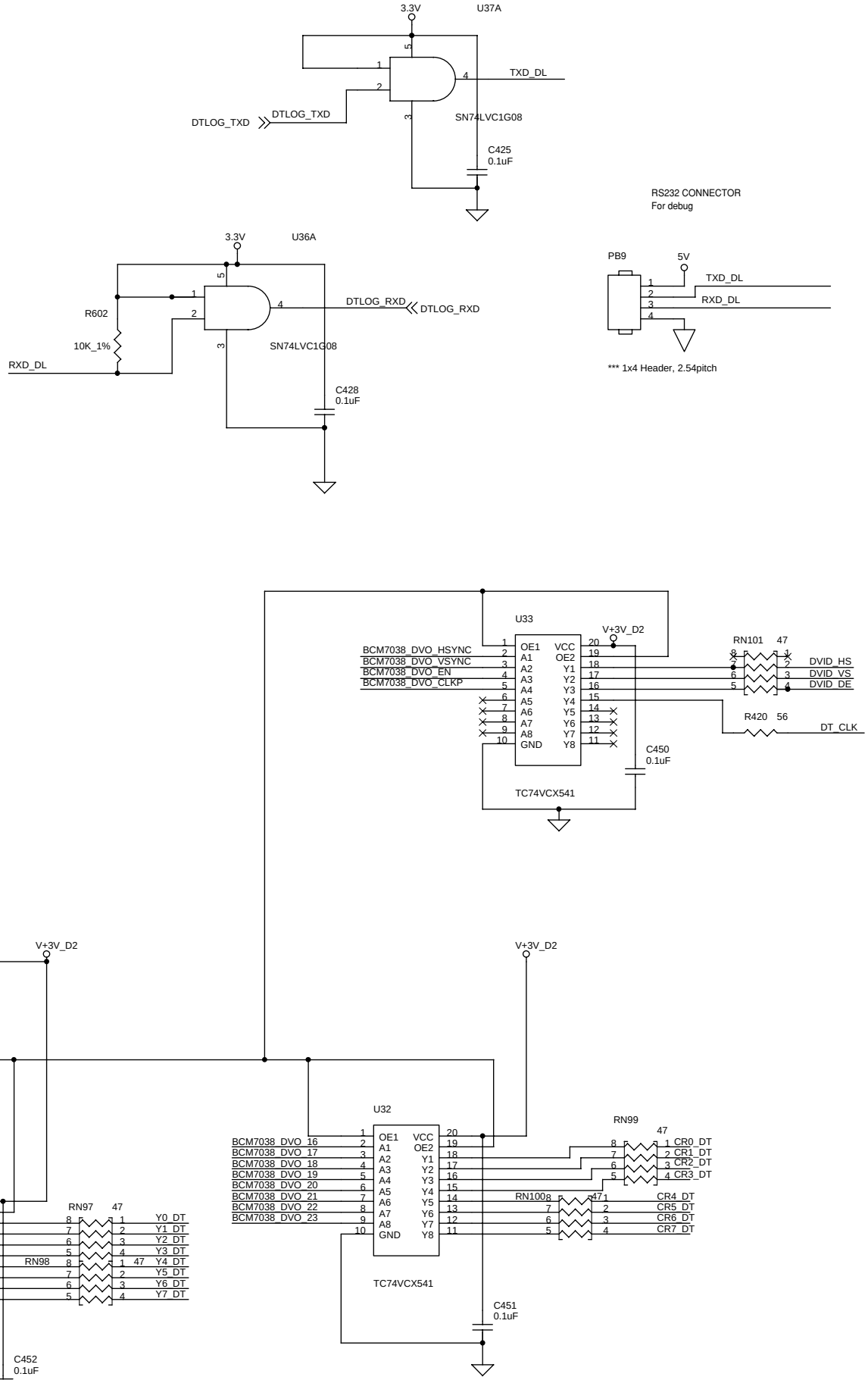

5VFE
U6
TU1216(IHP)
Modify Pin4 to
5VFE
1uF/16V
C580
NC1
NC2
RF_In
ANT_5V_Power
R463
0R
NC3
Loop_Through_Powewr_+5V
C417 100nF/50V
AGC
+5V_Tuner
I2C_AS
C418
1uF/16V
VT (Monitor)
NC4
GND1
+1.8V
+3.3V
IF
GND2
D0/SER_Out
D1
D2
D3
D4
D5
D6
D7
TS_CLK
SDA
SCL
RST
DATA_VAL
MPEG_PKT_SYNC
NC5
NC6
+1V8FE_1
3.3VFE
R6
33R
BCM7038_PKT0_DATA
R349
33R
BCM7038_PKT0_CLK
R350
0R
M2_SDA
R351
0R
M2_SCL
FE_RESET_N
R14
33R
R16
33R
BCM7038_PKT0_SYNC
C20
C419
22pF
22pF
A

9.27 DTV MB ASSY (16/16)

DTV MB ASSY (16/16)

- Inter-Connection BLOCK



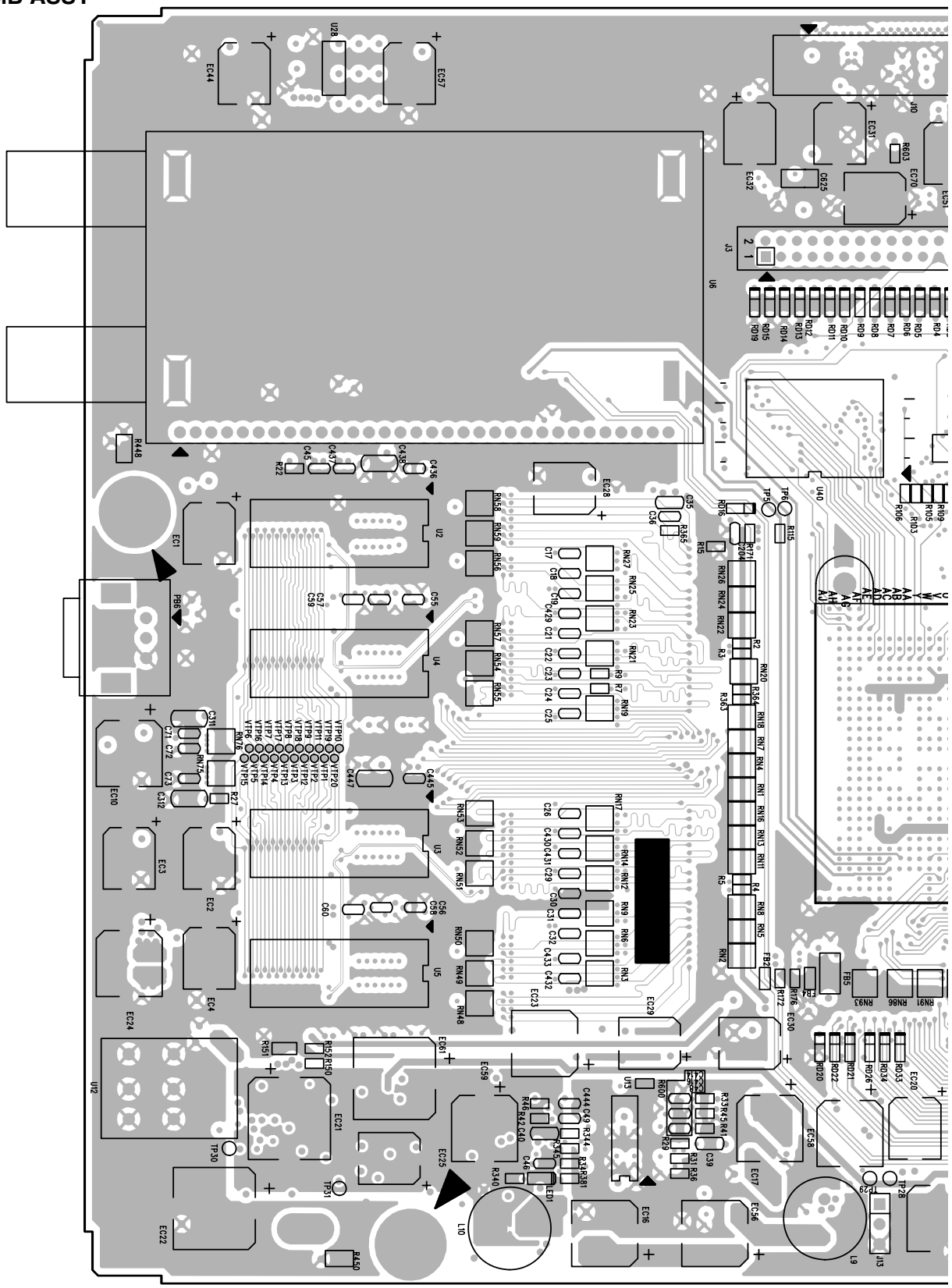

3.3V
U37A
TXD_DL
DTLOG_TXD
DTLOG_TXD
SN74LVC1G08
C425
0.1uF
RS232 CONNECTOR
For debug
3.3V
U36A
R602
10K_1%
RXD_DL
DTLOG_RXD
DTLOG_RXD
SN74LVC1G08
C428
0.1uF
PB9
5V
TXD_DL
RXD_DL
*** 1x4 Header, 2.54pitch
U33
V+3V_D2
BCM7038_DVO_HSYNC
BCM7038_DVO_VSYNC
BCM7038_DVO_EN
BCM7038_DVO_CLKP
OE1
A1
A2
A3
A4
A5
A6
A7
A8
GND
VCC
OE2
Y1
Y2
Y3
Y4
Y5
Y6
Y7
Y8
TC74VCX541
C450
0.1uF
RN101
47
DVID_HS
DVID_VS
DVID_DE
R420
56
DT_CLK
V+3V_D2
V+3V_D2
U32
BCM7038_DVO_16
BCM7038_DVO_17
BCM7038_DVO_18
BCM7038_DVO_19
BCM7038_DVO_20
BCM7038_DVO_21
BCM7038_DVO_22
BCM7038_DVO_23
TC74VCX541
C451
0.1uF
RN99
47
CR0_DT
CR1_DT
CR2_DT
CR3_DT
RN100
47
CR4_DT
CR5_DT
CR6_DT
CR7_DT
RN97
47
Y0_DT
Y1_DT
Y2_DT
Y3_DT
RN98
47
Y4_DT
Y5_DT
Y6_DT
Y7_DT
C452
0.1uF

10. PCB CONNECTION DIAGRAM

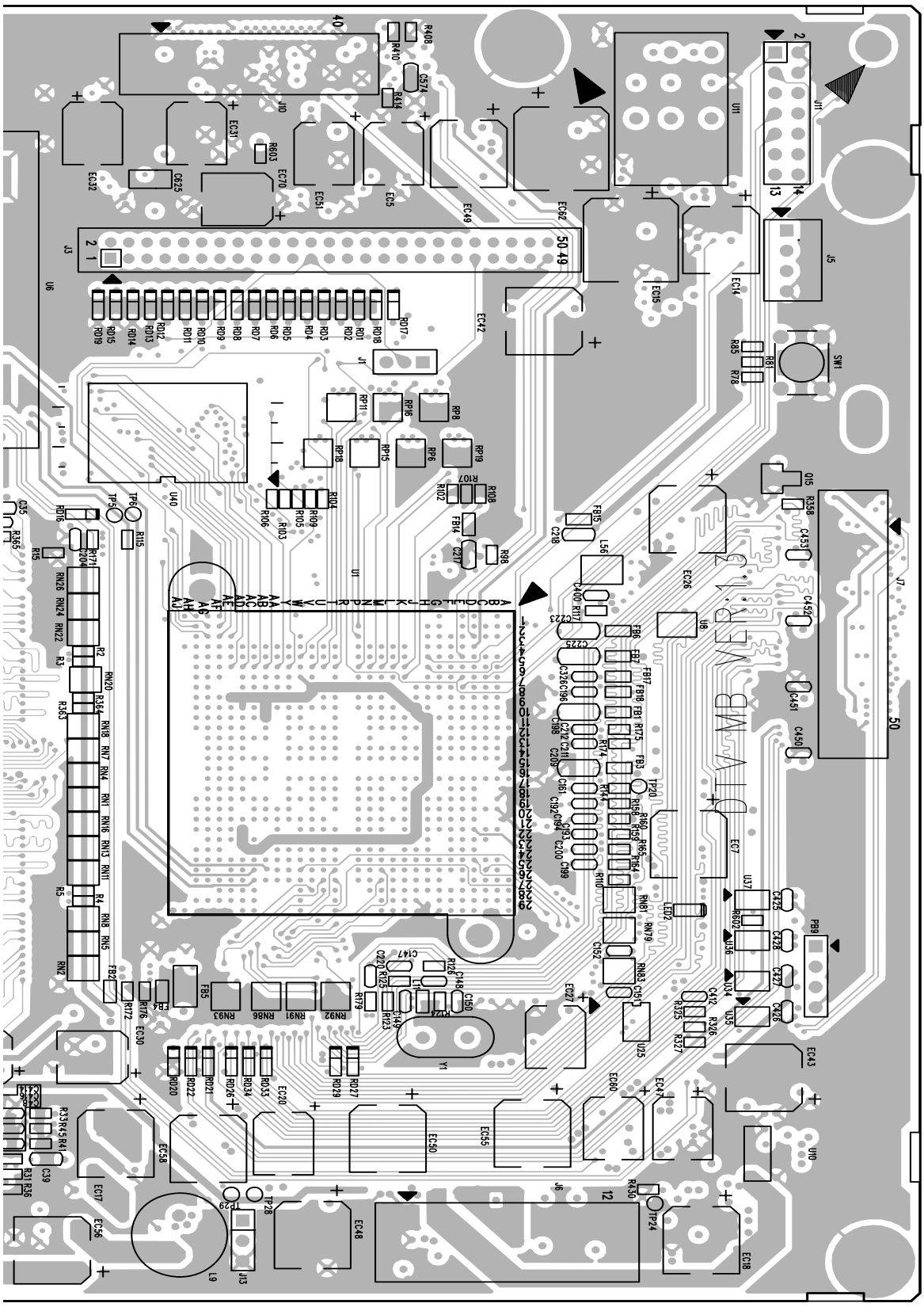
10.1 DTV MB ASSY

SIDE A

DTV MB ASSY

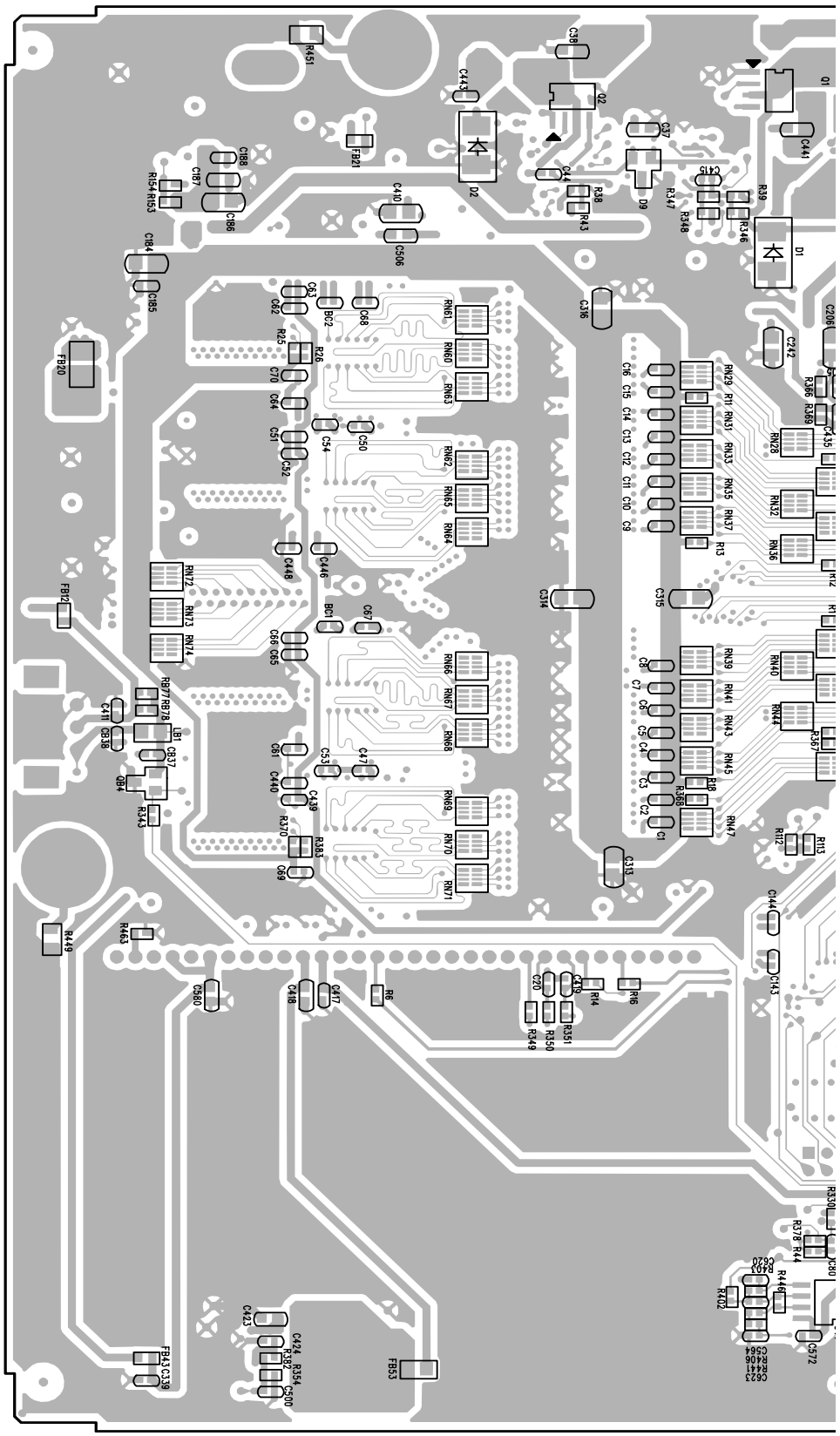


SIDE A

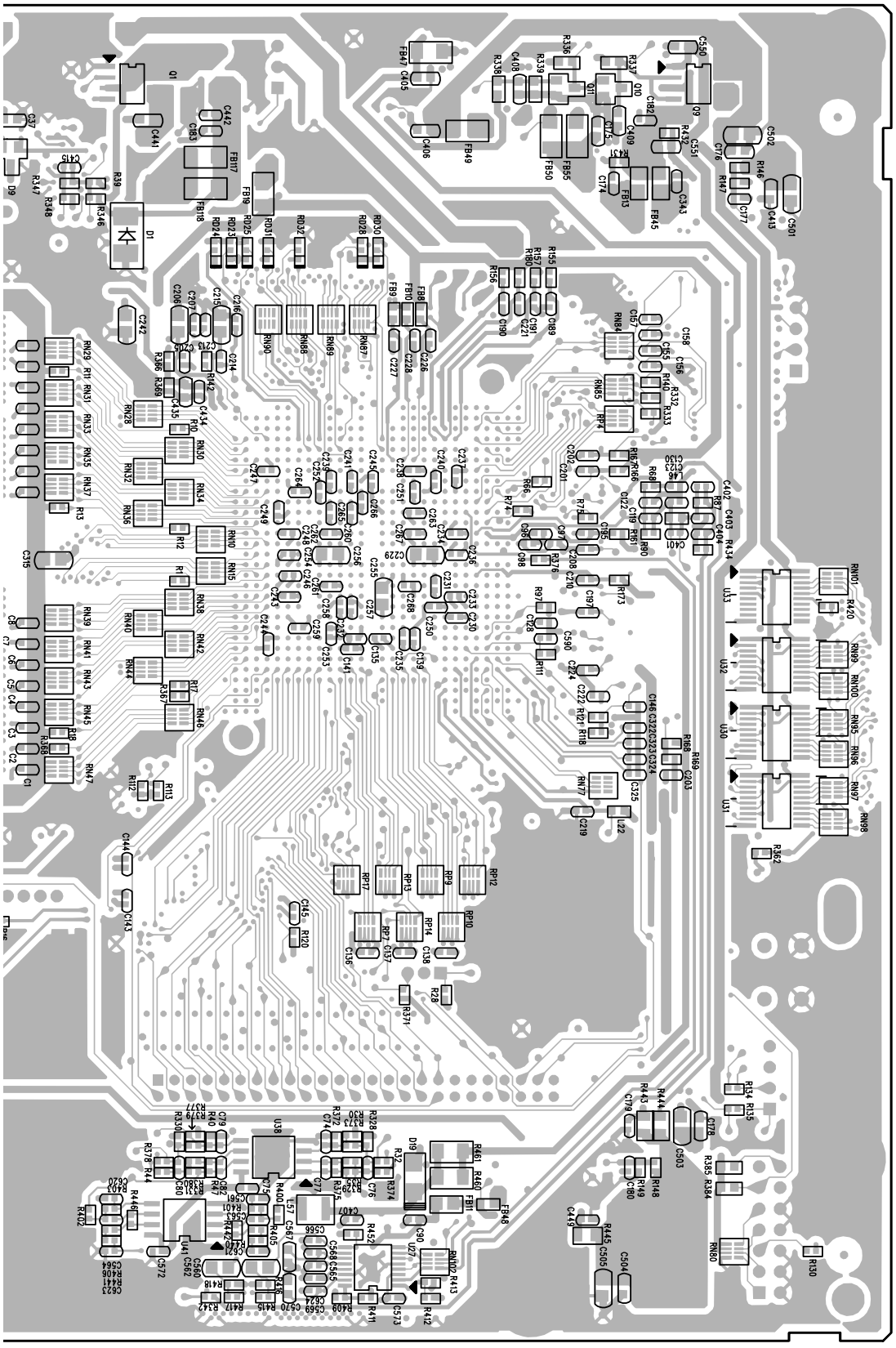


SIDE B

DTV MB ASSY



SIDE B

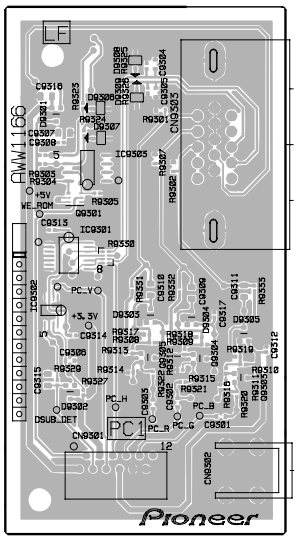


10.2 TANSHI, SIDE and PC ASSYS

SIDE A

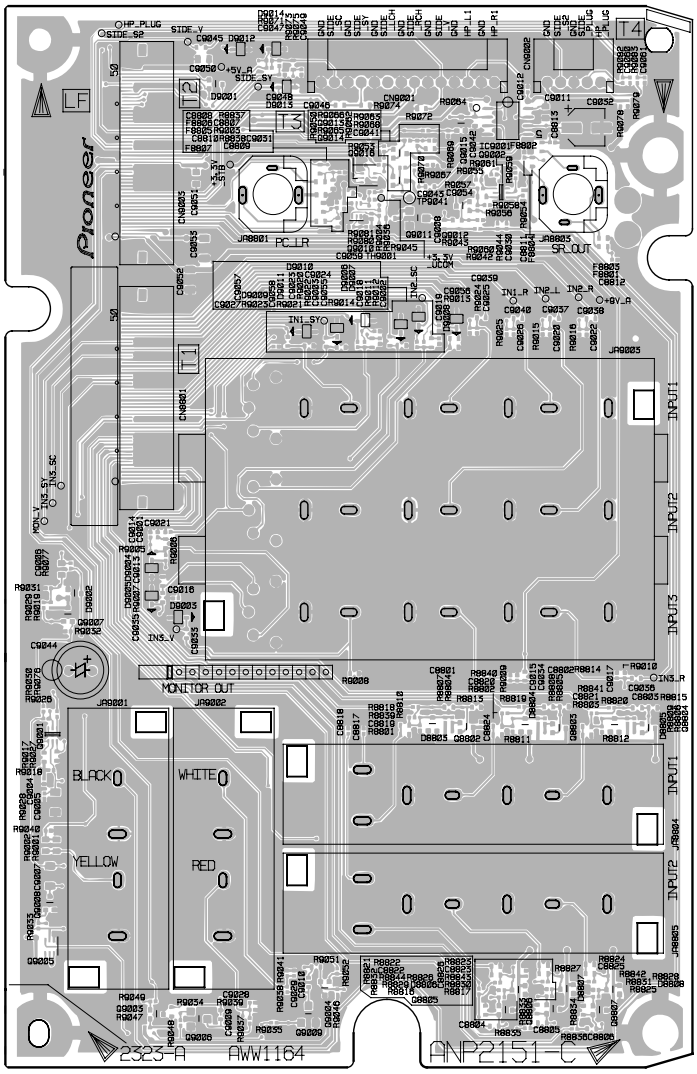
SIDE A

PC ASSY



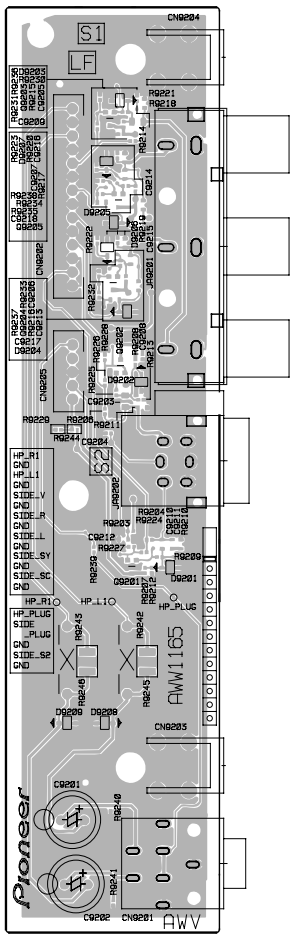
(ANP2151-C)

TANSHI ASSY



(ANP2151-C)

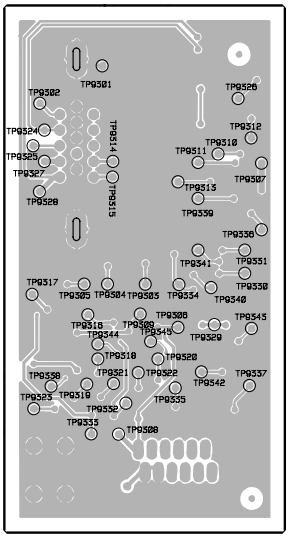
SIDE ASSY



(ANP2151-C)

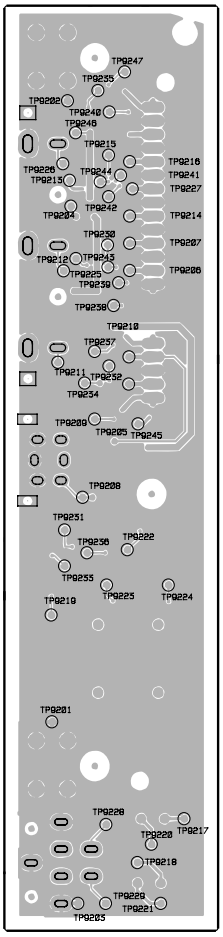
SIDE B

PC ASSY



(ANP2151-C)

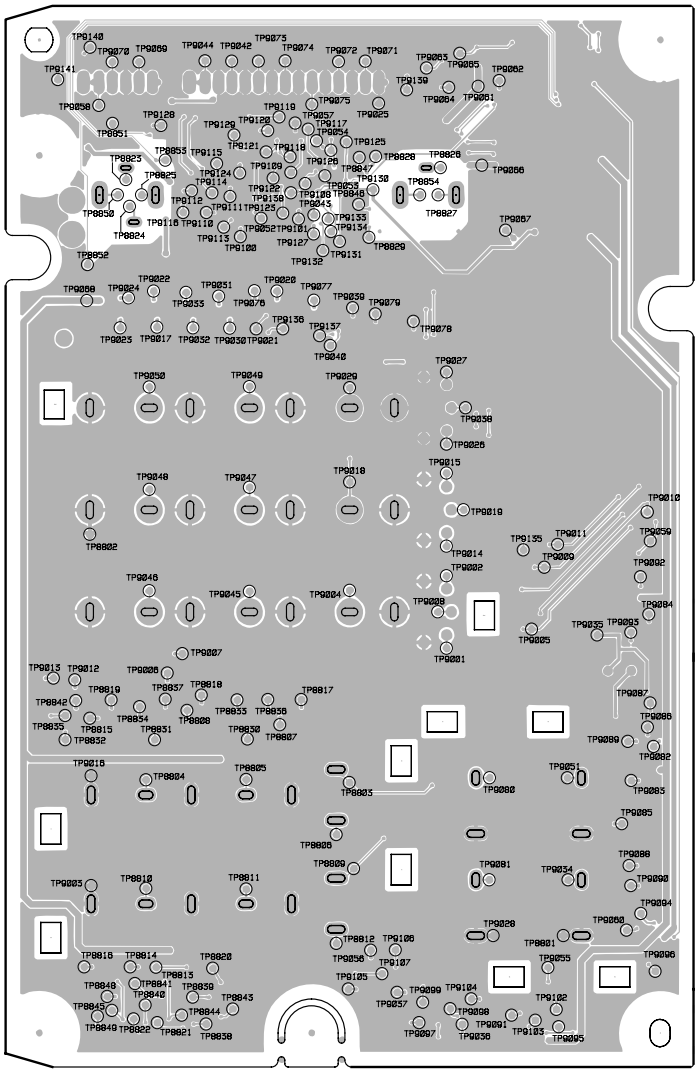
SIDE ASSY



(ANP2151-C)

SIDE B

TANSHI ASSY



(ANP2151-C)